

## This Week's Citation Classic®

**Venables P H & Wing J K.** Level of arousal and the subclassification of schizophrenia.

*Arch. Gen. Psychiat.* 7:114-9, 1962.

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Tonic arousal was measured in a group of schizophrenic men. The patients were assessed clinically and their degree of behavioral arousal assessed. With the exception of those who exhibited coherent delusions, it was found that there was a high correlation between arousal and withdrawal. [The *SCI*® and the *SSCI*® indicate that this paper has been cited in more than 200 publications.]

groups—one speeding up and one slowing down when given additional stimulation. Patients rated as “withdrawn” speeded up while those that were rated as “active”—the present concept would be having positive symptoms—slowed down. With this background, Wing’s clinical expertise and my experimental ideas flourished together.

The techniques used in the 1962 study were, however, the result of other forces. With “arousal” in the contemporary climate, I had hoped to measure three of its aspects at the same time, namely, behavioral, cortical, and autonomic. I applied to be allowed to purchase EEG equipment but was told that such an expenditure was impossible. However, at the time, Jasper had published work indicating that the ability of the cortex to resolve paired stimuli was influenced by the subjects’ state of arousal.<sup>4</sup> We thought we could build an apparatus for the measurement of “Two Flash Threshold” (TFT) more cheaply than the cost of an EEG machine. That schizophrenics might not be able to perform a TFT task was a gamble. In the end, they could. As far as the measurement of autonomic aspects of “arousal” was concerned, I had had doubts about artifacts introduced by the passage of current in skin conductance measurement and advocated skin potential.

The finding that “withdrawn” or, in today’s terms, “negative symptom,” patients had high arousal was developed into a theoretical position presented in 1964,<sup>5</sup> but it has needed elaboration in the light of present-day thought. One of my students, Michael Sansur, carried out a study, the results of which I reported,<sup>6</sup> in which he showed that skin conductance level was positively related to flattened affect and alolia in those subjects who had mainly positive symptoms, while this was not the case for those with primarily negative symptoms. The patients in the 1962 study were exhibiting many positive symptoms. Thus after nearly a quarter of a century, confirmation of the original study was available.

### Tonic Arousal and Schizophrenic Subtypes

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John K. Wing and I were members of the MRC social psychiatry unit at the time this study was carried out. This unit was directed by that formidable leader of British psychiatry, Professor (later Sir) Aubrey Lewis. A large proportion of its work was on the study of schizophrenia. Wing was involved with social and diagnostic aspects, while I was concerned with the application of experimental psychological techniques to the examination of disordered mechanisms.

Wing had been working on methods of producing consistently applicable methods of clinically rating schizophrenic patients and had published in 1961 a paper whose title embodied his aim.<sup>1</sup> It was as a development of this methodology that he later constructed the Present State Examination,<sup>2</sup> which has been used as a standard diagnostic instrument in studies worldwide. While Wing was working in this area, Jack Tizard and I had carried out a study on the effects of additional stimulation on reaction time in schizophrenics.<sup>3</sup> This had shown that, in chronic schizophrenics, there were two sub-

1. Wing J K. A simple and reliable subclassification of chronic schizophrenia. *J. Ment. Sci.* 107:862-75, 1961. (Cited 165 times.)
2. Wing J K, Cooper J E & Sartorius N. *The measurement and classification of psychiatric symptoms*. Cambridge, England: Cambridge University Press, 1974. p. 1-233. (Cited 1,610 times.)
3. Tizard J & Venables P H. The influence of extraneous stimulation on the reaction time of schizophrenics. *Brit. J. Psychol.* 48:299-305, 1957.
4. Jasper H H. Mechanisms of epileptic automatism. *Epilepsia* 3:381-90, 1962.
5. Venables P H. Input dysfunction in schizophrenia. (Maher B A, ed.) *Progress in experimental personality research. Volume 1*. New York: Academic Press, 1964. (Cited 185 times.)
6. ----- . Psychophysiology and psychiatry. (Rosenberg R, Schulsinger F & Stromgren E, eds.) *Psychiatry and its related disciplines: the next 25 years*. Copenhagen, Denmark: World Psychiatric Association, 1986. p. 79-96.

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