ELECTRODERMAL INDICES OF INFORMATION PROCESSING AND FUNCTIONAL CEREBRAL ASYMMETRY IN SCHIZOPHRENIA. A COMPARISON WITH AFFECTIVE DISORDER

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CONTENTS

SUMMARY

Skin conductance measures of the orienting response and tonic arousal were used to test the general hypothesis that certain groups of symptoms occurring in schizophrenia could be understood in terms of anomalies in the stages of perceptual information processing. A review of the literature describing patterns of symptom change during recovery from schizophrenic psychoses led to the identification of relatively discrete groups of symptoms. The delineation of these groups was based on their *prima facie* internal consistency and the tendency for their constituent items to covary with time. It was proposed that one of these symptom groups may be a more or less direct manifestation of some primary or "core" psychotic process of fundamental importance in schizophrenia. Other symptom groups were thought to represent secondary, corrective or compensatory information processing strategies that served to counterbalance those of the primary abnormality.

A model of the orienting response which was developed by Arne Ohman within the framework of attention and information processing theory was modified and incorporated within an information processing model of schizophrenia. When certain components of this model were tested using bilateral skin conductance measurements in a tone habituation paradigm, it was found that acutely psychotic schizophrenic patients had relatively high levels of tonic arousal and showed a pattern of asymmetry in several skin conductance variables which suggested underactivity of left hemisphere functioning relative to that of the right. Using amplitude of the orienting response as the central information processing variable of relevance to the proposed model of schizophrenia, it was found that those symptoms representing the putative primary abnormality in schizophrenia and those representing the secondary or compensatory processes were each related to this orienting response variable in opposite directions in a manner predicted by the proposed model of

schizophrenia. Furthermore, these secondary symptoms, unlike those reflecting the primary disorder, seemed to be associated with reduced tonic arousal and, to a lesser extent, normalization of the lateral asymmetry in skin conductance. That is, they seemed to be associated with increasing activation of left hemisphere functioning relative to that of the right.

In contrast, the findings with respect to patients with depressive illness failed to confirm predictions based on the literature dealing with electrodermal activity in depression. In particular, reduced tonic arousal in depression was not demonstrated. Neither did the direction of skin conductance asymmetry conform to expectation. Finally, there was a positive correlation between tonic arousal levels and severity of psychomotor slowing instead of the predicted negative correlation. This unexpected finding was discussed in the light of other research conducted by the author.

Reference:

Ohman, A. The orienting response, attention, and learning: An information-processing perspective. In H.D. Kimmel, E.H. Van Olst and J.F. Orlebeke (Eds). *The Orienting Reflex in Humans*. Lawrence Erlbaum Associates, Inc., Hillsdale, New Jersey, 1979, pp 443-471.