Relationships between the Symptomatology and Neuropsychology of Schizophrenia: Three, Five, Eleven, or a Greater Number of Valid Syndromes?

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BSc (Hons) MAPS

Submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy (Clinical Psychology)

University of Tasmania

September 2005
Abstract

The marked heterogeneity between individuals diagnosed as experiencing schizophrenia has troubled nosologists since the very coining of the term. Catalysed by Crow’s (1980) hypothesis of independent ‘positive’ and ‘negative’ syndromes, which led to substantial breakthroughs in our comprehension of schizophrenia, the last two decades have seen a resurgence of interest in the characterisation of symptom dimensions to resolve the issue of heterogeneity. A three-dimensional model, comprising ‘psychotic’, ‘negative’ and ‘disorganised’ syndromes has received considerable research attention and has been proposed for inclusion in the Diagnostic and Statistical Manual of Mental Disorders. Similarly, a five-dimensional model, adding syndromes of ‘affective disturbance’ and ‘excitement’, has also attracted an increasing profile of literature. Mounting evidence suggests, however, that these models do not adequately reflect the diversity of symptoms seen among those with a diagnosis of schizophrenia, and that they may emerge as an artefact of lossy factor-analytic techniques applied to measurement models biased or inadequate in their coverage of symptoms. To overcome such limitations, in the present study one hundred in- and out- patients diagnosed with schizophrenia were assessed for symptoms using a comprehensive series of assessment scales. Additionally, participants completed a battery of neuropsychological tests tapping five aspects of attention, and smooth pursuit eye tracking was also recorded. Using cluster analyses to examine correlations between symptoms, eleven groups of symptoms were identified: ‘hostility’, ‘conceptual disorganisation’, ‘bizarre behaviour’, ‘grandiosity’, ‘auditory hallucinations’, ‘loss of boundary delusions’, ‘paranoia’, ‘anxious intropunitiveness’, ‘cognitive dysfunction’, ‘negative signs’ and ‘social dysfunctions’. All groupings were internally consistent, largely independent of others, and supported by other symptom models
proposed in the literature. Several of the symptom groupings were validated by
demonstration of independent relationships with neuropsychological variables or aspects
of eye movements, and the more complex symptom model was equivalent or superior in
the prediction of neuropsychological performance than the three- and five- factor
symptom models.

Implicit in dimensional approaches to conceptualising schizophrenia is the notion that
the identified groupings may reflect the functioning of distinct brain systems. This thesis
has demonstrated that the ‘syndromes’ defined by the three- and five- dimensional
models of schizophrenia are actually heterogeneous groupings of poorly correlated
symptoms. This, in turn, obscures the relationships between symptoms and underlying
pathology. Dimensional approaches to psychopathology hold great promise for
unravelling the nature of psychosis. However, the existing facile descriptions may actively
constrain the potential for research progress. The rigorously developed description of
symptomatology presented here represents a compact and useful representation of the
spectrum of symptoms experienced in schizophrenia, and has demonstrated an
advantage over existing conceptions that demands implementation and vigorous research
attention.
Acknowledgements

First and foremost, to Jackie Hallam, for making *everything* worthwhile.

Dr Walter Slaghuis, for your ongoing support, guidance and encouragement, and for weathering food poisoning in the name of this work.

Dr Geoff Stuart for statistical advice, and (unwittingly) inspiring the ideas behind this thesis at the 1998 Australasian Schizophrenia Conference.

Tom O’Brian, Andre Declerk, A/Prof Saxby Pridmore, Audrey Lowrie, and Barb Smith for substantial support with encouragement and recruitment of participants; and to the staff of the Royal Hobart Hospital Department of Psychological Medicine, Richmond Fellowship, Tolosa Street Rehabilitation Service, Peacock Centre, Campbell House, Gavitt House, Bellereve Centre and Derwent Valley Centre for providing time and space for conducting interviews with participants.

Importantly also to the one hundred participants that very kindly volunteered to take part in this study.
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