Intellectual function and schizophrenia†

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There is now little doubt that there is an association between a broad range of neuro-psychological abnormalities and schizophrenia. However, the nature of this relationship is not yet fully understood. For example, are the cognitive abnormalities observed just before or shortly after the onset of psychotic illness risk factors for or markers of the illness? In this month’s Journal, Gunnell et al (2002, this issue) seek to clarify the exact nature of this relationship. In a cohort study which examined cognitive function at 18 years of age in 109,643 Swedish conscripts, they sought to clarify whether any relationship between poor cognitive function and the subsequent onset of schizophrenia was mediated or explained by prenatal and early childhood adversity. Their main findings were that the association between cognitive function and schizophrenia appears to be genuine and is independent of such early life events, at least in so far as they were able to measure the latter.

Their paper raises a number of additional issues which merit our attention. First, the authors found that the best predictor of schizophrenia was not any one specific test, but rather a semi-structured interview by a psychologist to assess suitability for officer status. Second, they failed to find a linear association between most tests of intellectual functioning and the risk for schizophrenia. Finally, they found that the association was stronger for schizophrenia than for non-schizophrenic non-affective psychosis.

THE ‘OFFICER’ INTERVIEW

Of the test items examined, the most striking predictor of later schizophrenia was poor scoring at the interview on suitability for officer status. This interview was based on a loosely structured questionnaire and, although we have few details of its precise nature, it is likely that it covered a number of domains of both psychological and social functioning. It is therefore unsurprising that this proved to be the strongest predictor of later psychotic illness, since there is now good evidence that the predictive power of multiple variables grouped together is much stronger than any single variable for schizophrenia, regardless of the domain (biological, psychological or psychosocial) (Ismail et al, 1998; Davidson et al, 1999). For example, combining an attentional test, Gunnell, a logical test, Davidson et al et al, 2000). Moreover, in the national Israeli cohort of 16- to 17-year-old males (Davidson et al, 1999), combining intellectual ratings with measures of social functioning and organisational ability gave rise to an impressive prediction model with 75% sensitivity, 100% specificity and 72% positive predictive value.

DIAGNOSTIC SPECIFICITY

The association between impaired intellectual functioning and psychosis was strongest for schizophrenia when compared with other non-affective psychoses. This is consistent with the view of van Os et al (1998), who suggest that ‘there is little evidence that any risk factor is specific to any diagnostic category within the functional psychoses’. Impairments in general ability have also been recorded in the early biographies of individuals with affective psychoses and anxiety or depressive disorders, with any distinction between these respective groups simply being one of magnitude. Thus pre-schizophrenia cases usually perform worse than the other patient groups, which also perform below the norm; patients with bipolar illness,
whose psychomotor and intellectual development appears normal, are a possible exception (Cannon et al, 2002). Indeed, the association between receiving special education or repeating a school grade and the diagnostic category of ‘other psychoses’ in the Finnish cohort was even stronger than that with schizophrenia. A possible exception to this rather undifferentiated pattern of associations is between speech difficulties and future schizophrenia: the only school-based assessment which distinguished the pre-schizophrenia cases from the other patient groups in the 1958 British birth cohort was the cognitive evaluation of ‘speech difficulties’, at both 7 and 11 years of age (Jones & Done, 1997). Thus, it could be the magnitude of the effect of some risk factors, rather than their qualitative difference, that projects an individual towards a schizophrenic rather than a non-schizophrenic psychotic illness.

**CONCLUSIONS**

Gunnell et al (2002, this issue) further clarify the nature of the relationship between poor intellectual functioning and schizophrenia. Although their sample was confined to early-onset male cases and the period of follow-up is, as yet, relatively short, this study none the less presents good evidence that this relationship is robust and is not confounded by early adversity. The specificity of these abnormalities to schizophrenia is still unclear and unlikely to be exclusive, and it is still unlikely that any one single psychological or biological test will prove a useful screening tool for predicting the disorder. The best predictor so far remains quasi-psychotic symptoms, whose presence in 11-year-old children was found by Poulton et al (2000) to carry a sixteen-fold increase in risk of later schizophreniform disorder.

**DECLARATION OF INTEREST**

None.

**REFERENCES**


