

SCHIZOPHRENIA WITH ONSET AT THE EXTREMES OF ADULT LIFE

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ABSTRACT

Objective. To define the epidemiology, phenomenology, premorbid and risk factors in patients with the first manifestation of a schizophrenia-like illness after the age of 60 years, and compare them with patients with an onset before the age of 25 years.

Design/setting/subjects. All contacts for a non-affective psychotic illness across all ages of onset were ascertained through a psychiatric case register; patients were rediagnosed according to operationalized criteria for psychotic illness, and those with a very early and very late onset compared.

Main outcomes measures. Phenomenological, premorbid and aetiological parameters were compared in the two groups, using risk ratios and 95% confidence intervals.

Results. Very late onset patients ($N = 72$) were, compared to their very early onset counterparts ($N = 192$), more likely to be female, have good premorbid functioning and developmental history, and to exhibit persecutory delusions and hallucinations; they were less likely to have negative schizophrenic symptoms, to have a positive family history of schizophrenia, or have suffered pregnancy or birth complications.

Conclusions. The results highlight premorbid, aetiological and phenomenological differences between patients with the onset of a schizophrenia-like illness at the extremes of adult life, and suggest it is premature to consider the two groups to be merely different manifestations of the same illness. © 1997 by John Wiley & Sons, Ltd.

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Kraepelin delineated 'dementia praecox' as a severe early onset form of psychotic illness associated with almost inevitable decline; most of the individuals to fulfil such criteria are male (see Castle and Murray, 1991; Murray *et al.*, 1992). Not all patients with a non-affective 'functional' psychosis fit this description, and Kraepelin used the term 'paraphrenia' to describe those patients with a generally later onset of illness (around 40 years) and in whom the course was more benign, with better preservation of personality and less disturbance of volition; delusional content was generally more believable, and reasoning intact apart from those areas impinged upon by the delusional beliefs. Mayer followed up 78 cases assigned to the paraphrenia

category by Kraepelin and found the majority did show some decline in general social functioning and increase in paranoia over the years. Mayer concluded that the paraphrenia cases merely reflected a later onset form of dementia praecox (by now the Bleulerian term 'schizophrenia' having been adopted).

Roth (1955) resurrected the term paraphrenia (actually 'late paraphrenia'), but used it to describe a very late onset (>60 years) group with florid paranoid delusions, often with a well-organized theme, with or without auditory hallucinations and with generally good preservation of personality. Kay and Roth (1961) subsequently performed a follow-up of 99 such cases, and their delineation of a late onset group with female preponderance, low marital rates, low fertility, social isolation and paranoid personality attributes, cemented the late paraphrenia concept in European psychiatry. Thus, ICD-9 had a category of 'paraphrenia', akin to

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Roth's original description of late paraphrenia. This has been dropped from ICD-10, despite spirited protests from some workers, who argue that the dissimilarities of such cases from those with an early onset make such a separate category useful.

Aetiologically, patients with the onset of a schizophrenia-like illness in very late life are reportedly less likely than their early onset counterparts to have a family history of schizophrenia, but it has been suggested that family loading for affective disorders might be higher. A number of other parameters are reportedly associated with late onset psychosis, including sensory impairment. We are aware of no previous studies which have systematically assessed other risk factors for schizophrenia (eg obstetric complications) in patients with very late onset psychoses.

Given the paucity of systematic population-based studies of non-affective psychoses in later life, and the lack of systematic comparison studies with early onset patients, we used a comprehensive mental health register sample to investigate the very late onset group directly. We define the epidemiology (age-at-onset distribution, gender distribution) of such cases in a sample neither biased by hospital admission nor preselected according to any particular set of diagnostic criteria for schizophrenia; also, we did not use any arbitrary age-at-onset cutoff. We also compare the phenomenology, premorbid functioning and aetiological parameters (family history, obstetric complications, etc) in those patients with a very early (<25 years) and those with a very late (>60 years) onset disorder.

MATERIALS AND METHODS

The patients described here were those individuals residing in the defined catchment area of Camberwell, SE London, who were recorded as having had a first psychiatric contact resultant upon a non-affective psychotic illness (equivalent ICD-9 codes: 295.0–295.9; 297.2; and 298.0–298.9) during the years 1965–1984. These patients were systematically recorded on the Camberwell Cumulative Psychiatric Case Register. This group of patients has been described previously by us, but a specific investigation of very late onset cases has not hitherto been undertaken with this sample.

The 'Operational Criteria Checklist for Psychotic Illness' or OPCRIT (McGuffin *et al.*, 1991) was completed for each patient, using all available

sources of data (including medical, nursing, social work and occupational therapy notes, as well as, in most cases, a semi-standardized case summary). The checklist provides a simple, reliable method of applying multiple operational diagnostic criteria in studies of psychotic illness, and earlier versions have been used to rate case summaries.

Two independent workers (D.C. and S.W.) performed the ratings. Interrater reliability was computed on a random subset of 50 cases which were rated by both workers; kappa was 0.82 for DSM-III-R diagnoses. Age at onset was recorded as 'the earliest age at which medical advice was sought for psychiatric reasons or at which symptoms began to cause subjective distress or impair functioning' (as in OPCRIT). Interrater reliability (performed by 5-year bands) for 'age at onset' was excellent (kappa = 0.93). Information relating to marital/cohabiting status at time of contact and to premorbid social and work adjustment, as well as the presence or absence of abnormal premorbid personality traits, were also rated, in accordance with the criteria laid down in OPCRIT. 'Premorbid' refers to the period before the onset of illness, as defined above. The criteria for poor premorbid work adjustment take account of poor academic work and of poor performance as a housewife, thus reducing bias relating to early onset patients (scholars/students) or females (housewives). For the premorbid variables, interrater reliabilities were: single, 1.0; premorbid work adjustment, 0.65; premorbid social adjustment, 0.64; and personality disorder, 0.60.

Comparisons of very early and very late onset patients were undertaken by establishing risk ratios and 95% confidence intervals.

RESULTS

Of the total 477 cases included in this set of analyses, 192 (40%) had an illness onset before they reached 25 years ('very early onset': 97 (20%) before 21 years and 95 (20%) between 21 and 25 years). At the other end of the age spectrum, 72 cases (16%) had their first manifestation of illness after 60 years ('very late onset': 16 (3.5%) 60–65 years; 18 (3.5%) 66–70 years; 15 (3%) 71–75 years; 13 (2.5%) 76–80 years; and 10 (2%) over 80 years). Of the very early onset group, 61% were male, compared to 24% of those with a very late onset (RR 5.04; 95% CI 2.73–9.35). The very early onset patients were also more likely to be of

Table 1. Very early and very late onset patients: diagnosis according to DSM-III-R criteria

	Atypical psychosis	Schizophreniform disorder	Schizophrenia	Delusional disorder
Very early onset patients (<25 yr)	44 (23%)	19 (10%)	71 (37%)	12 (6%)
Very late onset patients (>60 yr)	11 (15%)	11 (15%)	40 (56%)	8 (11%)

Table 2(a). Prevalence of symptoms more common in very early onset patients (<25 yr)

	Percentage in very early onset patients (<25 yr) (N = 192)	Percentage in very late onset patients (>60 yr) (N = 72)	Risk ratio; 95% CI
Positive formal thought disorder	28.4	1.4	0.04; 0.00–0.30
Negative formal thought disorder	14.2	0.0	0.85; 0.81–0.91
Inappropriate affect	21.6	4.3	0.16; 0.05–0.54
Restricted affect	17.9	0.0	0.82; 0.79–0.88
Passivity delusions	29.3	9.8	0.26; 0.11–0.60
Catatonia	12.1	0.0	0.87; 0.83–0.92
Primary delusions other than delusional perception	16.8	2.8	0.14; 0.03–0.61
Thought insertion	16.8	1.4	0.07; 0.01–0.52
Thought withdrawal	10.0	1.4	0.13; 0.02–0.97
Grandiose delusions	22.1	8.5	0.32; 0.13–0.81

Table 2(b). Prevalence of symptoms more common in very late onset patients (>60 yr)

	Percentage in very early onset patients (<25 yr) (N = 192)	Percentage in very late onset patients (>60 yr) (N = 72)	Risk ratio; 95% CI
Persecutory delusions	61.6	93.1	8.25; 3.17–21.43
Organized delusions	12.6	55.7	8.65; 4.57–16.35
Widespread delusions	42.9	70.4	3.17; 1.77–4.67
Third person auditory hallucinations	28.9	41.7	1.74; 1.01–13.06
Accusatory or abusive voices	43.7	67.6	2.63; 1.48–4.67
Persecutory delusions with hallucinations	48.9	76.1	2.54; 1.37–4.70

African-Caribbean ethnicity (40% vs 4%), a reflection of the changing sociodemographic patterns of Camberwell over the years.

A comparison of the very early and very late onset patients in terms of DSM-III-R criteria is shown in Table 1. The results confirm that many patients with very late onset non-affective functional psychoses have a florid disorder which meets stringent DSM-III-R criteria for schizophrenia (over half of the cases with an onset after 60 years vs around a third of those with onset before 25 years). Very late onset patients were also more likely than their very early onset counterparts

to meet criteria for delusional disorder (11.1% vs 6.3%).

Phenomenological parameters

Analysis of phenomenological variables revealed distinct differences between patients with an onset of illness before 25 years and those with onset after 60. The differences are detailed in Tables 2(a) and 2(b); all ratings are as in OPCRIT. Formal thought disorder, passivity phenomena, thought interference and negative symptoms (paucity of thought/speech, restricted affect) were more

common in patients with an onset of illness under 25 years of age, while persecutory delusions, expressly in an elaborately organized form, and any form of auditory hallucination were more common in the very late onset group. Indeed, the only symptoms not significantly differently distributed between the two groups were delusional perception, bizarre delusions and delusions of reference.

While 93% of our very late onset cases had delusions of a persecutory nature, in 22% these involved machines, X-rays or other special means by which the persecutors tormented their victims. Nearly half of the very late onset cases reported so-called 'partition' delusions, believing that people, objects, gases or radiation could enter their abode through objectively impermeable barriers. The majority of very late onset patients had one or more form of hallucination: 85% auditory, 22% visual, 10% olfactory and 17% somatic.

Premorbid and aetiological comparisons

In terms of premorbid parameters, patients with an onset of illness after 60 years of age fared better than their early onset counterparts. Comparisons of the two groups on levels of educational achievement were not meaningful as opportunities and expectations regarding schooling and tertiary education have changed markedly throughout this century; indeed, over 80% of the very late onset group had no schooling beyond the age of 14 years. However, OPCRIT criteria for premorbid work adjustment are not prejudiced by educational achievement, and the very early and very late onset patients differed markedly in this regard; 57% of the former but only 9% of the latter were judged to have had poor premorbid work adjustment (RR 0.07; 95% CI 0.03–0.17). Similarly, 21% of the very late vs 50% of the very early onset patients were rated (OPCRIT criteria) as having shown poor premorbid social adjustment (RR 0.27; 95% CI 0.14–0.51). Consonant with this finding, 67% of the very late onset group were currently or had been married, the proportion in the very early onset group being only 15% (RR 0.08; 95% CI 0.04–0.17).

In exploring those parameters implicated in the aetiology of schizophrenia, we found that patients with an onset of illness before 25 years had, in comparison with their counterparts with an onset after 60, a higher rate of obstetric complications (14.1 vs 4.5%; RR 0.29; 95% CI 0.03–2.29) and developmental difficulty (11.9% vs 0%; RR 0.88;

95% CI 0.83–0.94). In terms of familial loading, early onset cases tended to be more likely to have a positive family history of schizophrenia (10.2% vs 2.9%; RR 0.26; 95% CI 0.66–1.16) but not of other serious psychiatric disorder (30.6% vs 23.5%; RR 0.69; 95% CI 0.37–1.32).

A third of very late onset patients were reported to have impaired hearing and 20% were visually impaired, with 12% having impairment in both modalities. There was no statistically significant association between modality of sensory impairment and modality of hallucination. However, patients with premorbid paranoid personality traits were significantly less likely than those without such traits to have visual impairment (RR 0.22; 95% CI 0.05–0.92); there was a trend towards a similar inverse relationship with hearing impairment (RR 0.35; 95% CI 0.11–1.16).

DISCUSSION

Diagnostic issues

In terms of diagnostic criteria fulfilled, only 37% of the very early cases fulfilled DSM-III-R criteria for schizophrenia, while over half of the over-sixties met the criteria. Few other studies have reported on how many very late onset schizophrenia patients meet operationalized criteria for schizophrenia, but Rabins *et al.* (1984) found that 21 of 35 (60%) of their group of patients with onset after 44 years met DSM-III criteria for schizophrenia after the age-at-onset stipulation was removed. Thus, the manifestation of stringently defined schizophrenia is by no means confined to younger ages.

Gender and phenomenology

Gender differences in very late onset schizophrenia have been widely reported, the female: male ratio in patients with an onset of illness after 60 ranging from 3:1 to 45:2 (see Castle and Howard, 1992). Previous studies have mostly been of hospitalized patients, with inherent bias towards more severely ill patients. However, the results presented in the current population-based first contact study confirm the female preponderance in later onset schizophrenia, and particularly in those patients with a very late onset form of illness. Possible reasons for this gender discrepancy have been addressed elsewhere (eg Castle and Murray, 1993).

There have been numerous descriptions of phenomenology in those patients with a very late onset of illness (> 60 years). Castle and Howard (1992), in reviewing such studies, concluded that, in general, such patients were more likely than their early onset counterparts to exhibit paranoid delusions, expressly in the form of highly systematized belief systems; and to have hallucinations in multiple sensory modalities. In contrast, very late onset cases are fairly consistently reported as being less likely to show formal thought disorder and 'negative' symptoms. There have been few comparative studies of early and late onset cases of schizophrenia. Pearlson *et al.* (1989) conducted a chart review and found that, compared to their early onset counterparts, schizophrenics with an onset of illness after the age of 44 were more likely to be deluded and to experience hallucinations; in contrast, they were much less likely to exhibit formal thought disorder or affective blunting. However, these workers did not specifically address the very late onset group.

We are aware of no previous large epidemiologically based study comparing phenomenology in very late and very early onset patients, using systematic delineation of symptoms. Of course, retrospective reviews of case records could be biased by differential reporting of symptoms, but this would only be of concern in a comparison study should there be systematic bias; the fact that some symptoms were found to be more common in the very early, and some in the very late onset group, suggests this was not the case.

Again, the results here underline the differences in phenomenology of very early and very late onset functional psychosis, particularly the preponderance of negative symptoms in patients with an early onset of symptoms and the systematized delusions and hallucinations which are the hallmark of very late onset patients.

Premorbid functioning and aetiological parameters

The fact that very late onset patients were more likely than those with a very early onset to have shown good premorbid adjustment in occupational terms is also consonant with the literature (eg Post, 1966). Previous investigators (eg Kay and Roth, 1961; Post, 1966) have noted that many very late onset schizophrenia patients have been rather socially isolated throughout their lives. The finding reported here that it was the very early onset group who were particularly likely to have exhibited poor

premorbid social adjustment places such reports in context and underscores data from many sources (see Murray *et al.*, 1992 for a review) that very early onset schizophrenia is a pernicious form of the illness which is particularly likely to follow on from premorbid dysfunction.

Aetiological parameters have been underinvestigated in patients with very late onset 'functional' psychoses. Castle and Howard (1992) revealed published studies of familial aggregation in such illnesses. Many such studies are methodologically problematic, including lack of stringent definition of illness and lack of control groups. However, the broad conclusion was that very late onset cases show lower familial loading than those with an early onset illness, a conclusion consonant with the data reported here. The nature of this chart review study makes the data on familial aggregation suboptimal, although we do not suspect systematic reporting bias.

In line with prediction, obstetric complications and developmental delay were more commonly reported in patients with a very early onset illness; this accords with the view that such patients have a form of illness consequent upon neurodevelopmental deviance (see Murray *et al.*, 1992). The high rates of sensory impairment in the very late onset group are also in keeping with the literature (reviewed by Castle and Howard, 1992). Of interest is the inverse correlation between premorbid dysfunction and sensory impairment in our sample, suggesting that these are relatively independent predisposing factors rather than cumulative ones.

CONCLUSIONS

We report here the epidemiology of late onset schizophrenia in a case register sample, and include a systematic analysis of differences between cases with a very early and very late onset of illness. The findings reinforce previous reports of a significant minority of patients with the onset of a schizophrenia-like illness in late life, and delineate differences between such cases and their very early onset counterparts in terms of premorbid functioning and phenomenology; a number of putative aetiological factors were also differentially distributed between these groups. The findings suggest that it is premature to consider very early and very late onset schizophrenia to be merely different manifestations of the same illness.

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