The EPPIC Follow-Up Study of First-Episode Psychosis: Longer-Term Clinical and Functional Outcome 7 Years After Index Admission

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Objective: To describe the longer-term clinical and functional outcome of a large, epidemiologic representative cohort of individuals experiencing a first episode of psychosis.

Method: A naturalistic, prospective follow-up of an epidemiologic sample of 723 consecutive first-episode psychosis patients, followed between January 1998 and April 2005, at a median of 7.4 years after initial presentation to the Early Psychosis Prevention and Intervention Centre (EPPIC) in Melbourne, Australia. EPPIC is a frontline public mental health early psychosis program, servicing a geographically defined catchment area with a population of about 800,000 people. The main outcome measures included the Brief Psychiatric Rating Scale, the Schedule for the Assessment of Negative Symptoms, the Beck Depression Inventory, the Global Assessment of Functioning Scale, the Social and Occupational Functioning Assessment Scale, the Quality of Life Scale, and the remission criteria developed by the Remission in Schizophrenia Working Group.

Results: Follow-up information was collected on up to 90.0% (n = 651) of the baseline cohort of 723 participants, with 66.9% (n = 484) interviewed. In the last 2 years, 57% of individuals with schizophrenia/schizophreniform, 54% with schizoaffective disorder, 62% with affective psychosis, and 68% with other psychotic disorders reported some paid employment. Depending upon the criteria applied, symptomatic remission at follow-up was observed in 37%–59% of the cohort. Social/vocational recovery was observed in 31% of the cohort. Approximately a quarter achieved both symptomatic remission and social/vocational recovery.

Conclusion: The relatively positive outcomes are consistent with a beneficial effect of specialized early intervention programs; however it is premature to draw firm conclusions. There was no control group and there are many differences between the relevant comparison studies and the present one. Although difficult to conduct, large scale controlled health services research trials are required to definitively determine the impact and optimal duration of specialized early psychosis programs.

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Follow-up studies are the central investigative tool to assess the course and natural history of an illness and ultimately inform us about the efficacy of treatments.[1] In a meta-analysis of twentieth-century literature on outcome in schizophrenia, Hegarty and colleagues[2] reported that 40% of patients "improved" after a mean follow-up of 5.6 years. The authors failed to show any improvements in outcome over the past century despite the advent of efficacious treatments and major psychiatric reform. A limitation of this review is the variable application of applied operational criteria, which constrains cross-study comparisons.

Throughout the 20th century, numerous studies have examined the course of illness and functional and clinical outcomes for schizophrenia cohorts. Until the mid 1980s, these cohorts were usually clinically heterogeneous with samples derived from predominantly multiepisodic, chronically ill cohorts.[3–5] Hence, these studies may not be fully representative of the true outcome of psychotic disorder and inevitably give an excessively pessimistic picture.[6]

The last 2 decades have seen the advent of follow-up studies comprising individuals experiencing a first psychotic episode, predominantly schizophrenia.[7–9] An overview of follow-up studies since 1992 with a follow-up period of 5 years or more is provided in Appendix 1.[10–29] These studies give comprehensive information about the outcome of psychotic disorders in the era of new treatments. However the rates and definitions of "poor," "fair," or "good" outcomes vary considerably across studies, underscoring the need for standardized criteria for remission and outcome. In an attempt to address this methodological gap, the Remission in Schizophrenia Working Group devised an operational definition of symptomatic remission comprising 2 components: a threshold of symptom severity on selected rating scale items and a duration criterion of 6 months.[30] These remission criteria present the opportunity to provide quality follow-up data for cross-study comparisons.[1,30]

Other limitations of first-episode follow-up studies are the variable use of standardized sampling methods, entry

For Clinical Use

- Current evidence supports the application of early intervention services for individuals with first-episode psychosis, including schizophrenia, to improve their social and vocational recovery and symptomatic remission at longer-term follow-up.
- Clinicians can help patients with first-episode psychotic disorders, including schizophrenia, engage successfully in vocational/educational pursuits.
- The historical "clinician's illusion," described by Cohen and Cohen (1984), of poor overall outcome for individuals with psychotic disorders may no longer be applicable with the introduction of early intervention services.

criteria, and information regarding the completeness and representativeness of recruited samples. In the 1990s, a new paradigm emerged concerning early detection and specialized intervention for patients with first-episode psychosis. The advent of specialized public mental health programs, particularly the Early Psychosis Prevention and Intervention Centre (EPPIC) in Melbourne, Australia,[31] created increasing momentum for international reform.[32–34] These programs provide early intervention strategies, specialized treatment approaches supported by clinical protocols, treatment manuals, and educational material for first-episode psychosis patients and their families and have been generally successful at recruiting and treating patients earlier during their first episode of psychosis.[35] The existence of such programs facilitates the recruitment of patients for follow-up who are clinically homogeneous for illness phase and experiencing the full range of psychotic disorders. In addition, EPPIC's mandate to treat all 14- to 30-year-old individuals who present with a first psychotic episode to public mental health services in a geographically defined catchment area (approximately 800,000 people) ensures epidemiologic representativeness.[36]

To our knowledge, the longer-term outcome of individuals with first-episode psychosis who were detected and treated by a specialized early psychosis program remains undetermined. The specific aims of the present study were (1) to describe the longer-term functional and clinical outcomes of a unique cohort of 723 epidemiologically representative, multidiagnostic first-episode psychosis patients treated for up to the first 2 years of illness in a specialist first-episode psychosis program; (2) to apply the symptomatic remission criterion of the remission criteria developed by Andreasen and colleagues[30] at longer-term outcome to the total cohort and schizophrenia spectrum diagnosis subgroup; and (3) to examine the relationship of symptomatic remission to recovery of functioning.

METHOD

Study Overview

The study provides a naturalistic, prospective longer-term follow-up of a baseline cohort of 723 consecutive first-episode psychosis patients, who were initially detected and treated for up to the first 2 years of their illness by a frontline public mental health service program, developed as a specialist first-episode psychosis program servicing a geographically defined catchment area in Melbourne, Australia.[9,36] The study's baseline sample characteristics are reported in Table 1, and the follow-up methodology has been fully described elsewhere.[9] Briefly, the data were drawn from the EPPIC long-term follow-up study, a longitudinal study of epidemiologically representative first-episode psychosis patients derived from the Aubrey Lewis Unit for first-episode psychosis, Royal Park Psychiatric Hospital, Melbourne, Australia, and its immediate successor, EPPIC,[31] between 1989 and 2001. During the recruitment periods, the study participants were obtained from consecutive patients accepted into treatment. Baseline inclusion criteria were age between 14 and 30 years; a *DSM-III-R*,[37] and from 1994, a *DSM-IV*[38] diagnosis, of a psychotic disorder (schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, bipolar disorder, major depressive disorder with psychotic features, brief reactive psychosis/brief psychosis, and psychosis not otherwise specified); informed consent for research participation; living in the defined catchment in the northwestern suburbs of Melbourne; adequate comprehension of the English language; and experiencing the first treated episode of psychosis with less than 6 months of prior neuroleptic medication. Exclusion criteria were primary organic mental disorder, intellectual disability, drug and/or alcohol induced psychosis, and epilepsy.

Study Sample

At the long-term follow-up, information was collected on up to 90.0% (n = 651) of the total baseline cohort of 723 participants. Follow-up interviews were conducted on 484 participants (66.9%); 128 (17.7%) refused to be interviewed; 74 (10.2%) could not be contacted and 37 (5.1%) were deceased. Of the deceased, 17 (2.3%) were from suicide, 13 (1.8%) from accidents, 3 (0.4%) from unnatural deaths of undetermined intent, 2 (0.3%) from natural causes, and 2 (0.3%) were unknown.

To assess potential participant bias due to study attrition, the interviewed sample (n = 484) was compared to the noninterviewed individuals (n = 239) on a range of demographic and clinical measures collected at baseline. No significant group differences were observed (Table 1).

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Procedure

Follow-up assessments were conducted between January 1998 and April 2005. Participants were traced in chronological order from the date of baseline assessment. Participants' written informed consent was obtained for study participation and access to clinical records and informants. Approval was obtained from relevant human research and ethics committees for the study and the collection of data from medical records and informants on the noninterviewed individuals (refusals, noncontactable, and deceased). The median follow-up duration was 7.2 years (range, 0.16–10.7; mean = 6.9 [SD = 2.1]) in the overall study sample who had follow-up data (n = 651) and 7.4 years (range, 4.1–10.7; mean = 7.3 [SD = 1.2]) in the group of participants that were interviewed (n = 484).

Table 1. Baseline Demographic and Psychopathology Data for First-Episode Psychosis Patients Who Were Interviewed at Longer-Term Follow-Up, Who Were Not Interviewed, and the Total Cohort of 723 Participants

Baseline Variable[a]	Interviewed (n = 484)	Not Interviewed (n = 239)	Total Cohort (N = 723)
Age, mean (SD), y			
At onset of psychotic symptoms	21.5 (3.5)	21.4 (3.8)	21.5 (3.6)
At index presentation	21.9 (3.5)	21.9 (3.7)	21.9 (3.6)
Sex, male, n (%)	326 (67.4)	176 (73.6)	502 (69.4)
Never married, n (%)	351 (85.4)	171 (84.2)	522 (85.0)
Diagnostic group, n (%)			
Schizophrenia spectrum[b]	276 (57.0)	138 (57.7)	414 (57.3)
Schizoaffective disorder	48 (9.9)	21 (8.8)	69 (9.5)
Affective psychosis[c]	118 (24.4)	63 (26.4)	181 (25.0)
Other psychosis[d]	42 (8.7)	17 (7.1)	59 (8.2)
DUP,[e] mean (SD), median, d	186.6 (416.3), 45.9	187.7 (457.9), 54.0	186.9 (430.4), 48.0
BPRS total score,[f] mean (SD)	15.0 (9.5)	15.3 (9.8)	15.1 (9.6)
BPRS-PS score,[g] mean (SD), median	3.9 (4.0), 3.0	3.9 (3.9), 3.0	3.9 (3.9), 3.0
SANS score,[h] mean (SD)	19.9 (16.2)	20.2 (15.8)	19.9 (16.1)

[a]Subject numbers vary from n = 551–723 for these variables due to missing data.
[b]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[c]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[d]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.
[e]Due to extreme positive skewedness, variables were log-transformed for analysis but untransformed scores are displayed.
[f]BPRS 18-item version at stabilization, approximately 8 weeks post first admission.
[g]Psychotic subscale derived from the BPRS (comprising suspiciousness, hallucinations, unusual thought content, and conceptual disorganization items) at stabilization, approximately 8 weeks post first admission.
[h]SANS at stabilization, approximately 8 weeks post first admission.
Abbreviations: BPRS = Brief Psychiatric Rating Scale, BPRS-PS = Brief Psychiatric Rating Scale-psychotic subscale, DUP = duration of untreated psychosis, SANS = Schedule for the Assessment of Negative Symptoms.

Assessments

The parent study included many measures; those used in the current analyses were as follows:

Demographic. Demographic characteristics of participants, contact details, sources of information available, and information regarding informants and nonresponders were recorded using a modified version of the World Health Organization International Study of Schizophrenia (WHO ISoS) information sheets.[39] The informant questionnaire included the nature of the relationship to the participant and their frequency of contact. Nonrespondents were categorized as refusals, deceased, or not contactable. The date and cause of death was recorded for deceased participants.

Diagnosis. At baseline, the Royal Park Multidiagnostic Instrument for Psychosis[40] was administered to 571 subjects, while the remaining 152 subjects were administered the Structured Clinical Interview for *DSM-IV-TR* Axis I Disorders, Research Version, Patient Edition (SCID-I/P)[41] to ascertain psychotic Axis I *DSM-III-R* diagnoses, which were subsequently converted to *DSM-IV*. The SCID-I/P was used to derive psychotic Axis I *DSM-IV* diagnoses at follow-up.

Psychopathology. Interviewer-administered measures included the Brief Psychiatric Rating Scale (BPRS)-expanded version[42] to evaluate severity of major psychiatric symptoms; and the Schedule for the Assessment of Negative Symptoms (SANS)[43] to evaluate the severity of negative symptoms. The Beck Depression Inventory (BDI)[44] is a self-report measure of depressive symptomatology.

Functioning status, quality of life, and vocational status. The Global Assessment of Functioning Scale (GAF)[45] and the Social and Occupational Functioning Assessment Scale (SOFAS)[46] were administered to assess functional outcomes. In addition to using the overall mean GAF score, the GAF was categorized into 3 categories: scores of 61 and above are generally taken to indicate good functioning, scores of 31 to 60 indicate fair functioning, and scores of 0 to 30 indicate poor functioning.[12,47] The Quality of Life Scale (QLS)[48] was administered to assess functional outcome. Vocational status at follow-up was assessed using the following 3 methods: (1) current work status item on the WHO ISoS information sheet; (2) the rate and extent of occupational role functioning (QLS item 9) and the level of role accomplishment (QLS item 10); and (3) employment over the last 2 years using the Life Chart Schedule (explanation below).[49]

Symptomatic remission criteria. The symptomatic severity component, but not the 6-month duration component, of the remission criteria proposed by Andreasen and colleagues[30] was applied at outcome to the total cohort and the schizophrenia spectrum disorder subgroup. To meet the criteria, a patient was required to achieve scores of no greater that 3 (mild) concurrently on the following 7 BPRS items (BPRS only criteria): grandiosity, suspiciousness, unusual thought content, hallucinatory behavior, conceptual disorganization, mannerisms/posturing, and blunted affect. Andreasen and colleagues[30] have also suggested that when using the BPRS, a score of 2 or less on the following 4 SANS items be included: affective flattening, avolition-apathy, anhedonia-asociality, and alogia (BPRS + SANS criteria).

Social and vocational recovery criteria. Recovery criteria were adapted from Liberman and colleagues[50] as used by

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Robinson and colleagues,[25] who operationalized the criteria using items from the Social Adjustment Scale (SAS).[51] In this study, we approximated the Robinson procedure using 3 items derived from the QLS that measured functioning in terms of interpersonal relations, role functioning, and participation in basic living tasks. The first item was social interactions with people outside of the family (QLS item 4; social activity score ≥ 4). The second was appropriate role function, defined as paid employment, attending school at least half-time, or, if a homemaker, performing that role adequately (QLS item 9; occupational role functioning score ≥ 4). The third was the ability to perform basic living tasks and to engage in certain activities (QLS item 19; commonplace activities score ≥ 4; eg, shopped for food, paid a bill, gone to a movie or play). We believe the QLS items provide a reasonable approximation of the SAS items used by Robinson and colleagues.

Living situation, course of psychosis, and treatment measures. Residential status, treatment utilization, and course of psychotic symptoms in the 2 years prior to the follow-up interview were assessed using the Life Chart Schedule.[49] The Life Chart Schedule was administered via a semistructured interview. The following items from the Life Chart Schedule were used in the current analyses: the number of months living independently, ever employed, and psychotic course type (episodic-discrete episodes no longer than 6 months, continuous-psychotic over most of the period, never actively psychotic in this period, or neither episodic nor continuous).

A service and treatment questionnaire was devised to record details about psychiatric treatment current at follow-up, including type, medication type, and dosage (chlorpromazine equivalents), and the most recent psychiatric hospital admission.

Reliability Exercise

Assessments were conducted by trained researchers, with a minimum 4-year undergraduate degree in psychology. Interrater reliability was established between 3 raters on 12 participants using a balanced incomplete block design[52] as utilized in the Chestnut Lodge Follow-up Study.[1] The raters were paired in all possible ways and each pair assessed the same number of participants. High intraclass correlation coefficients indicated very good agreement among the raters (–0.97 for BPRS total score; 0.94 for QLS; 0.93 for GAF; 0.91 for SANS total score; and 0.92 for SOFAS). For the Life Chart Schedule, interrater reliability was assessed by calculating the percentage discrepancy between raters, with only 2% of ratings found to be discrepant. Efforts were made to maintain interrater reliability across the entire follow-up, including careful calibration and standardization procedures and regular, in-depth review of a sample of interviews with the lead author. Raters were blind to diagnostic information and clinical ratings from previous assessments.

Data Analysis

To assess potential follow-up participant bias due to study attrition, baseline differences between the interviewed participants and those not interviewed were tested using χ^2 analyses and independent samples *t* tests as appropriate on a range of demographic and clinical measures. The main analyses were conducted on the data set of interviewed and the subset of noninterviewed subjects for whom data were obtained from secondary sources. Sample sizes varied from 424 to 651 individuals in the analyses due to the ranges in data availability for individual variables. Patients' characteristics at the long-term outcome were compared across 4 baseline *DSM-IV* psychotic diagnostic groups: schizophrenia (schizophrenia and schizophreniform disorder); schizoaffective disorder; affective psychotic disorders (bipolar disorder and major depressive disorder with psychotic features); and other psychotic disorders (delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified). Independent samples *t* tests and 1-way analyses of variance (ANOVAs) were conducted to test for symptomatic and functional differences between the diagnostic groups as appropriate. The Tukey honestly significant difference test and Dunnett's T3 test were used as appropriate for post hoc analyses to test differences between individual diagnostic groups.

Given the range in the duration of follow-up of the participants, all outcome analyses were repeated to determine the impact of this upon the findings. Using the median as the cut-off point, the duration of follow-up was categorized into the following time intervals: (1) duration ≤ 7.2 years and (2) duration > 7.2 years. In order to adjust for follow-up duration, general linear model analyses were conducted for the continuous outcome variables and χ^2 analyses for categorical outcome variables. All statistical analyses were carried out using SPSS version 14.0.2 (SPSS Inc, Chicago, Illinois).

RESULTS

Diagnosis at Baseline

At baseline, the 651 individuals with follow-up data were diagnosed with schizophrenia (n = 374, 57.5%), schizoaffective disorder (n = 61, 9.4%), affective psychosis (n = 161, 24.7%), and other psychoses (n = 55, 8.4%). Significant sex differences were observed between diagnostic groups. Male subjects accounted for 75.9% (n = 284) of those with schizophrenia, 63.9% (n = 39) of those with schizoaffective disorder, 60.9% (n = 98) of those with affective psychosis, and 63.6% (n = 35) of those with other psychoses ($\chi^2_3 = 14.8$, $P = .002$). Follow-up results are reported by baseline diagnostic groups.

Demographic Characteristics

The study sample included 456 (70.0%) male and 195 (30.0%) female subjects. The mean age at follow-up was 28.7 years (SD = 4.1). *T* tests revealed a statistically significant difference in age between male (28.5 years; SD = 4.0) and female (29.3 years; SD = 4.2) subjects at follow-up ($P = .03$). The mean duration of follow-up did not statistically differ between male subjects (6.8 years; SD = 2.2) and female subjects (7.1 years; SD = 1.8) ($P = .09$). Marital status was available for 621 individuals; 75.4% had never married,

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Table 2. Psychopathology Scores at Follow-Up by Diagnostic Group

	Schizophrenia Spectrum[a]		Schizoaffective Disorder		Affective Psychosis[b]		Other Psychosis[c]		
Variable	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median	Mean (SD)	Median	*P* Value
BPRS total score[d]	13.6 (9.2)	13.0	13.3 (9.2)	12.0	8.9 (7.7)	6.5	10.1 (8.3)	8.0	<.001[e]
BPRS-PS score[f]	4.4 (4.8)	3.0	3.5 (4.4)	2.0	1.9 (3.3)	0.0	2.8 (4.2)	1.0	<.001[g]
SANS total score[h]	20.4 (14.5)	19.0	18.2 (13.8)	15.5	14.2 (14.8)	8.0	13.0 (12.3)	9.5	<.001[i]
BDI score[j]	6.1 (5.9)	4.0	6.1 (7.5)	3.0	4.9 (6.1)	2.5	3.4 (3.6)	2.0	.03[k]

[a]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[b]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[c]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.
[d]BPRS, 18-item version; numbers of cases in analysis: schizophrenia = 273, schizoaffective = 44, affective = 118, other = 41.
[e]Significant post hoc differences: schizophrenia > affective psychosis; schizoaffective > affective psychosis.
[f]Psychotic subscale derived from the BPRS (comprising suspiciousness, hallucinations, unusual thought content, and conceptual disorganization items); numbers of cases in analysis: schizophrenia = 303, schizoaffective = 51, affective = 128, other = 46.
[g]Significant post hoc differences: schizophrenia > affective psychosis.
[h]Numbers of cases in analysis: schizophrenia = 261, schizoaffective = 40, affective = 105, other = 38.
[i]Significant post hoc differences: schizophrenia > affective psychosis, other psychosis.
[j]Numbers of cases in analysis: schizophrenia = 259, schizoaffective = 44, affective = 116, other = 40.
[k]Significant post hoc differences: schizophrenia > other psychosis.
Abbreviations: BDI = Beck Depression Inventory, BPRS = Brief Psychiatric Rating Scale, BPRS-PS = Brief Psychiatric Rating Scale-psychotic subscale, SANS = Schedule for the Assessment of Negative Symptoms.

Table 3. Psychosocial Functioning, Quality of Life, and Vocation at Follow-Up by Diagnostic Group

Variable	Schizophrenia Spectrum[a]	Schizoaffective Disorder	Affective Psychosis[b]	Other Psychosis[c]	*P* Value
GAF score,[d] mean (SD), median	54.9 (16.7), 51.0	60.2 (15.9), 61.0	65.0 (17.3), 65.0	63.2 (20.3), 65.0	<.001[e]
SOFAS score,[f] mean (SD), median	56.6 (16.6), 53.0	62.6 (15.7), 61.0	65.7 (17.5), 65.0	67.8 (17.9), 70.0	<.001[e]
QLS total score,[g] mean (SD), median	70.6 (28.8), 71.0	78.7 (28.1), 79.5	85.3 (29.1), 84.5	89.4 (30.2), 102.5	<.001[e]
Time living independently,[h] mean (SD), median, mo	22.1 (5.7), 24.0	21.9 (6.3), 24.0	23.1 (3.7), 24.0	22.2 (5.3), 24.0	.21
Work status,[i] n (%)					.13
Employed part time or full time	131 (36.3)	23 (38.3)	65 (42.2)	27 (51.9)	
Government benefit/unemployed[j]	208 (57.6)	32 (53.3)	74 (48.1)	20 (38.5)	
Student/home duties/volunteer work	22 (6.1)	5 (8.3)	15 (9.7)	5 (9.6)	

[a]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[b]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[c]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.
[d]Numbers of cases in analysis: schizophrenia = 324, schizoaffective = 55, affective = 135, other = 47.
[e]Significant post hoc differences: schizophrenia < affective psychosis, other psychosis.
[f]Numbers of cases in analysis: schizophrenia = 323, schizoaffective = 55, affective = 135, other = 46.
[g]Numbers of cases in analysis: schizophrenia = 285, schizoaffective = 50, affective = 118, other = 44.
[h]The period recorded is the most recent 2 years; numbers of cases in analysis: schizophrenia = 334, schizoaffective = 55, affective = 142, other = 50.
[i]Numbers of cases in analysis: schizophrenia = 361, schizoaffective = 60, affective = 154, other = 52.
[j]Solely receiving government benefit/unemployed.
Abbreviations: GAF = Global Assessment of Functioning Scale, QLS = Quality of Life Scale, SOFAS = Social and Occupational Functioning Assessment Scale.

18.0% were married/de facto, and 6.6% were separated/divorced. Significant differences in marital status were found between the baseline diagnostic groups, with 80.3% of those with schizophrenia, 81.7% of those with schizoaffective disorder, 65.8% of those with affective psychosis, and 61.5% of those in the other psychoses diagnostic group being unmarried ($\chi^2_6 = 19.8$, $P = .003$).

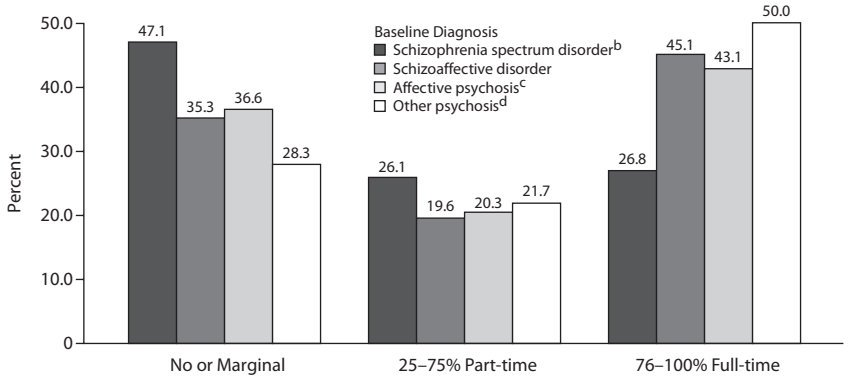
Symptomatic Status at Follow-Up

The SANS (total), BPRS (total and psychotic subscale), and BDI mean scores by baseline diagnostic groups are displayed in Table 2. One-way ANOVAs revealed significant group differences for all symptom variables investigated. Post hoc tests indicated that individuals with schizophrenia had significantly higher BPRS (total) mean scores than individuals diagnosed with affective psychosis. Individuals with affective psychosis were characterized by significantly less psychotic symptoms at follow-up than the schizophrenia group and had significantly lower BPRS (total) mean scores than individuals diagnosed with schizoaffective disorder. The SANS (total) mean scores were significantly higher in individuals with schizophrenia than in those diagnosed with affective psychosis and in the other psychosis group. Those with schizophrenia reported significantly higher mean BDI scores compared to individuals in the other psychosis group.

Functional Status, Quality of Life and Vocational Status

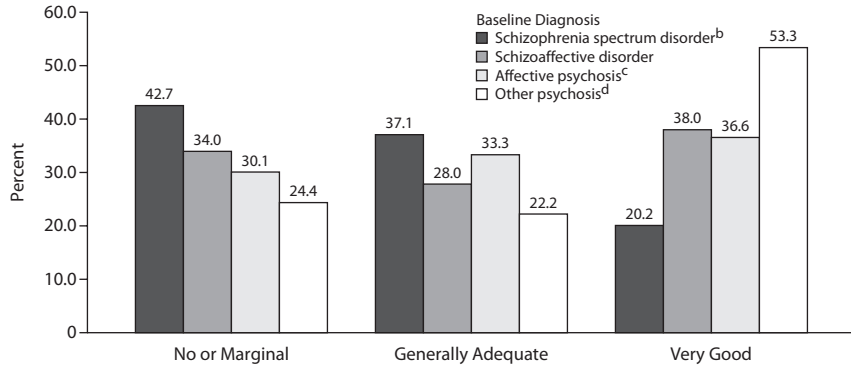
Table 3 presents information on psychosocial, quality of life, and vocational functioning at follow-up. One-way ANOVAs revealed significant group differences for the GAF, SOFAS, and QLS mean scores. Post hoc tests indicated that individuals with schizophrenia scored significantly lower than those diagnosed with affective psychosis and those in the other psychotic group, indicating poorer functioning. At follow-up, 561 individuals had GAF ratings. Of those,

Figure 1. Extent of Occupational Role Functioning (Quality of Life Scale Item 9) by Baseline Diagnostic Group[a]



[a]χ^2 tests indicated significant group differences ($\chi^2_6 = 20.1$, $P < .003$).
[b]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[c]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[d]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.

Figure 2. Level of Role Accomplishment (Quality of Life Scale Item 10) by Baseline Diagnostic Group[a]



[a]χ^2 tests indicated significant group differences ($\chi^2_6 = 31.0$, $P < .001$).
[b]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[c]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[d]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.

236 (42.1%) received a score of ≥ 61, 297 (52.9%) received a score of 31–60, and 28 (5.0%) received a score of 0–30. Therefore, 95% of participants were functioning at fair-to-good levels, according to the GAF cut-off (≥ 31) used in previous studies.[12,47] The mean amount of time spent living independently in the last 2 years for the total cohort (n = 581) was 22.3 months (SD = 5.3; median = 24.0 months), with no significant differences observed between diagnostic groups ($P = .21$).

At follow-up, 39.2% of the total cohort were employed (22.0% full-time, 17.2% part-time); 7.5% were studying, working voluntarily, or homemakers; and 53.3% were solely receiving a government benefit or were unemployed. No significant diagnostic group differences were observed ($\chi^2_6 = 9.9$, $P = .13$) (Table 3). Additionally, in the previous 2 years, 188 individuals (56.5%) with schizophrenia, 29 individuals (53.7%) with schizoaffective disorder, 88 individuals (62.0%) with affective psychosis, and 34 individuals (68.0%) with other psychotic disorders reported paid employment, with no significant group differences ($\chi^2_3 = 3.6$, $P = .30$). Figures 1 and 2 display the role functioning outcomes by diagnostic group. Some 52.9% of individuals diagnosed at baseline with schizophrenia, 64.7% with schizoaffective disorder, 63.4% with affective psychosis, and 71.7% with other psychotic disorder were able to function in a role. χ^2 tests indicated significant group differences ($\chi^2_6 = 20.1$, $P < .003$). In terms of achieving a level of success in role fulfillment, 57.3% of individuals with schizophrenia, 66.0% with schizoaffective disorder, 69.9% with affective disorder, and 75.5% with other psychotic disorders were functioning at an adequate level and above. χ^2 tests indicated significant group differences ($\chi^2_6 = 31.0$, $P < .001$).

Symptomatic Remission Criteria

Table 4 presents information on symptomatic remission at follow-up. Ratings on all symptoms required to determine remission status were available in 424 individuals. Of those, 250 (59.0%) met the BPRS remission criterion.[30] When these symptoms were complemented by the 4 SANS symptoms, 156 (36.8%) individuals were found to be in remission (BPRS + SANS criterion). The proportions of individuals who met the BPRS remission criterion according to diagnosis are listed in Table 4. χ^2 tests indicated significant group differences ($\chi^2_3 = 21.9$, $P < .001$) with more individuals in the affective psychosis group (76.5%) in symptomatic remission compared to the other diagnostic groups. χ^2 tests indicated significant group differences ($\chi^2_3 = 18.3$, $P < .001$) between the proportions of individuals who met the BPRS + SANS remission criterion according to diagnosis (Table 4).

Social and Vocational Recovery Criterion

The QLS items required to apply social/vocational recovery criteria were available in 482 individuals. Of those, 30.5% (147/482) met recovery criteria (Table 4). χ^2 test indicated a significant group difference between proportions of individuals who met the social/vocational recovery criteria according to diagnosis ($\chi^2_3 = 27.3$, $P < .001$) (Table 4).

Table 4. Symptomatic Remission and Social/Vocational Recovery According to the Defined Criteria Applied Across Diagnosis and Total Cohort

Criteria	Schizophrenia Spectrum,[a] n (%)	Schizoaffective Disorder, n (%)	Affective Psychosis,[b] n (%)	Other Psychosis,[c] n (%)	Total Cohort, n (%)
Symptom remission					
BPRS[d]	125 (50.2)	23 (62.2)	78 (76.5)	24 (66.7)	250 (59.0)
BPRS + SANS[e]	72 (28.9)	14 (37.8)	51 (50.0)	19 (52.8)	156 (36.8)
Social/vocational recovery[f]	61 (22.2)	16 (34.8)	45 (38.5)	25 (56.8)	147 (30.5)
Social/vocational recovery and symptom remission					
BPRS[g]	44 (17.7)	10 (27.8)	36 (35.3)	18 (50.0)	108 (25.6)
BPRS + SANS[h]	37 (14.9)	10 (27.8)	36 (35.3)	16 (44.4)	99 (23.5)

[a]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[b]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[c]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.
[d]Scores ≤ 3 concurrently on the 7 key BPRS items; numbers of cases in analysis: schizophrenia = 249, schizoaffective = 37, affective = 102, other = 36.
[e]Scores ≤ 3 concurrently on the 7 key BPRS items and scores ≤ 2 concurrently on the 4 key SANS items; numbers of cases in analysis: schizophrenia = 249, schizoaffective = 37, affective = 102, other = 36.
[f]Scores ≥ 4 concurrently on QLS items 4, 9, and 19; numbers of cases in analysis: schizophrenia = 275, schizoaffective = 46, affective = 117, other = 44.
[g]Scores ≤ 3 concurrently on the 7 key BPRS items and scores ≥ 4 concurrently on QLS items 4, 9, and 19; numbers of cases in analysis: schizophrenia = 248, schizoaffective = 36, affective = 102, other = 36.
[h]Scores ≤ 3 concurrently on the 7 key BPRS items and scores ≤ 2 concurrently on the 4 key SANS items; and scores ≥ 4 concurrently on QLS items 4, 9, and 19; numbers of cases in analysis: schizophrenia = 248, schizoaffective = 36, affective = 102, other = 36.
Abbreviations: BPRS = Brief Psychiatric Rating Scale, QLS = Quality of Life Scale, SANS = Schedule for the Assessment of Negative Symptoms.

Table 5. GAF, SOFAS, and QLS Scores by Remission Groups in 424 Individuals With First-Episode Psychosis

Variable	BPRS Criterion[a] (n = 250)	No Remission (n = 174)	*P* Value	BPRS+SANS Criterion[b] (n = 156)	BPRS Only Criterion[a] (n = 94)	No Remission (n = 174)	*P* Value
GAF score, mean (SD)	67.8 (15.1)	45.6 (11.6)	< .001	76.2 (10.9)	53.9 (9.8)	45.6 (11.6)	< .001[c]
SOFAS score, mean (SD)	68.8 (15.6)	48.6 (12.2)	< .001	77.8 (10.6)	53.9 (10.1)	48.6 (12.2)	< .001[c]
QLS total score,[d] mean (SD)	88.0 (26.2)	57.9 (23.8)	< .001	103.3 (15.6)	62.7 (19.9)	57.9 (23.8)	< .001[e]

[a]Scores ≤ 3 concurrently on the 7 key BPRS items.
[b]Scores ≤ 3 concurrently on the 7 key BPRS items and scores ≤ 2 concurrently on the 4 key SANS items.
[c]Significant post hoc differences: BPRS + SANS > BPRS only, no remission; BPRS only > no remission.
[d]Numbers of cases in analysis.
[e]Significant post hoc differences: BPRS + SANS > BPRS only, no remission.
Abbreviations: BPRS = Brief Psychiatric Rating Scale, GAF = Global Assessment of Functioning Scale, QLS = Quality of Life Scale, SOFAS = Social and Occupational Functioning Assessment Scale.

Symptomatic Remission and Social/Vocational Recovery Criteria Combined

For the cohort overall, the rates of individuals who met both social/vocational recovery and symptomatic remission criteria at follow-up were 25.6% (108/422) for the BPRS criterion, and 23.5% (99/422) for the BPRS + SANS criterion (Table 4). Proportions of individuals according to diagnosis who met the social/vocational and BPRS criteria and the social/vocational and BPRS + SANS criteria are displayed in Table 4.

Symptomatic Remission Criteria and Functional Status Combined

Table 5 shows the mean scores for GAF, SOFAS, and QLS by remission status. *T* tests indicated that individuals who met the BPRS remission criterion (59.0%) were characterized by a significantly higher QLS total mean score than individuals who were not in remission. Analysis of variance–derived post hoc comparisons revealed that the group that met the BPRS + SANS remission criterion (36.8%) were functioning significantly better than both the groups fulfilling the BPRS criterion *only* and the group who were not in remission.

Course of Psychotic Illness and Treatment at Follow-Up

Table 6 displays Life Chart Schedule definitions of illness course and treatment utilization frequencies at follow-up by diagnostic groups. Over the prior 2 years, the majority of individuals (n = 262, 46.2%) reported being never actively psychotic, 20.8% (n = 118) reported an episodic course (discrete episodes no longer than 6 months), 33.0% (n = 187) reported a continuous course (psychotic over most of the period) and 2.7% (n = 16) reported neither an episodic nor a continuous course. χ^2 tests indicated significant group differences for course type ($\chi^2_6 = 24.5$, $P < .001$). (Group comparisons excluded the "neither episodic nor continuous course" group due to low numbers.) Information concerning current treatment for psychiatric problems at follow-up was available in 628 individuals, with 22.5% (n = 141) not receiving psychiatric treatment and 487 individuals (77.5%) receiving treatment of some kind. The treatment types were 46.6% private psychiatrist/medical practitioner, 49.7% community mental health care center, and 3.7% inpatient psychiatric care. No significant diagnostic group difference was found ($\chi^2_6 = 2.9$, $P = .82$). χ^2 tests indicated significant group differences for involvement in psychiatric treatment at follow-up ($\chi^2_3 = 23.4$, $P < .001$) (Table 6). Some 449

Table 6. Life Chart Schedule–Defined Illness Course and Treatment Utilization at Follow-Up by Diagnostic Group

Variable	Schizophrenia Spectrum,[a] n (%)	Schizoaffective Disorder, n (%)	Affective Psychosis,[b] n (%)	Other Psychosis,[c] n (%)	*P* Value
Psychotic Illness course[d]					< .001
Episodic	62 (18.8)	9 (17.3)	37 (26.8)	10 (20.8)	
Continuous	134 (40.7)	15 (28.8)	26 (18.8)	12 (25.0)	
Never psychotic	133 (40.4)	28 (53.8)	75 (54.3)	26 (54.2)	
Currently receiving psychiatric treatment[e]					< .001
No	61 (16.9)	15 (25.4)	42 (26.8)	23 (45.1)	
Yes	300 (83.1)	44 (74.6)	115 (73.2)	28 (54.9)	
Treatment type[f]					.82
Private practitioner	144 (48.0)	21 (47.7)	52 (45.2)	10 (35.7)	
Community health care center	143 (47.7)	22 (50.0)	60 (52.2)	17 (60.7)	
Inpatient psychiatric care	13 (4.4)	1 (2.3)	3 (2.6)	1 (3.6)	

[a]Schizophrenia spectrum disorder group includes schizophrenia and schizophreniform disorder.
[b]Affective psychosis group includes bipolar disorder and major depressive disorder with psychotic features.
[c]Other psychosis group includes delusional disorder, substance-induced psychotic disorder, brief reactive psychosis, and psychotic disorder not otherwise specified.
[d]The period recorded is the most recent 2 years; numbers of cases in analysis: schizophrenia = 329, schizoaffective = 52, affective = 138, other = 48.
[e]Numbers of cases in analysis: schizophrenia = 361, schizoaffective = 59, affective = 157, other = 51.
[f]Numbers of cases in analysis: schizophrenia = 300, schizoaffective = 44, affective = 115, other = 28.

individuals (73.5%) reported current psychiatric medication use. Most of the study sample (62.7%) experienced their last psychiatric hospital admission more than 2 years ago; no significant differences were observed between diagnostic groups.

Follow-Up Rediagnosis

Numbers (%) of individuals rediagnosed at follow-up with schizophrenia, schizoaffective disorder, affective psychosis, and other psychosis were 374 (57.5%), 55 (8.4%), 119 (18.3%), and 61 (9.4%), respectively (missing data, n = 42, 6.4%). When the above analyses were repeated using these follow-up diagnostic groups, the pattern of results remained the same as when using baseline diagnosis.

Follow-Up Duration

The above analyses were repeated after adjusting for duration of follow-up, and the pattern of results remained the same.

DISCUSSION

The present findings provide, for the first time, comprehensive longer-term outcome information on people detected and treated in the early period of illness by a specialized early psychosis program. Few follow-up studies with first-episode psychosis samples are assembled from a front-line public psychiatric service with a geographically defined catchment area.[27,53,54] The present study cohort is likely to approximate an epidemiologically representative sample of people treated for first-episode psychosis.[9] Recent longitudinal studies in first-episode psychosis range in baseline sample size from 44 to 1171 individuals (Appendix 1). With few exceptions, these studies focus on patients with an initial diagnosis of schizophrenia or other related nonaffective psychoses. The present study includes patients with the full diagnostic range of psychotic disorders, including schizophrenia, and provides detailed standardized information, in particular on symptom remission and social/vocational recovery in these patient groups.

Strengths

Particular strengths of this study are the large, representative, multidiagnostic, first-episode psychosis cohort of previously untreated individuals from a defined catchment area; the relatively long follow-up period; the application of standardized assessment instruments across a range of symptomatic and functional domains; and the use of modern remission criteria that will allow valid future cross-study comparisons. The attrition rate is relatively low considering the cohort size and follow-up duration. Finally, the age range covered includes the peak period of onset without censoring or exclusion at the lower end.

Limitations

During baseline recruitment, the treatment model in northwestern Melbourne for first-episode psychosis was evolving and there was some variation in the quality and extent of treatment provided. Upon leaving the early psychosis program at 2 years, the follow-up treatment of participants was not controlled and comprised a variable exposure to standard public and/or private sector care, which was of a variable standard. This limits the degree to which we can comment upon the impact of the specialized early psychosis program on outcome, as does the absence of a concurrent control group. To examine this question definitively will require a different study design, namely a controlled trial of distinct models of health services delivery. Another limitation is that the operational definition of symptomatic remission[30] was developed for schizophrenia cohorts, and we have applied it to a multidiagnostic cohort. A final and significant weakness, also manifest in some other reports,[55,56] is that we were unable to apply the duration criterion of the remission criteria as follow-up data were collected cross-sectionally.

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Table 7. Schizophrenia Follow-Up Studies That Applied the Remission Criteria Devised by the Remission in Schizophrenia Working Group[30]

Study	Diagnosis	Baseline n	Follow-Up n	Follow-Up Duration	Full Remission Criteria Applied	Remission Rate at Follow-Up, %
Lasser et al[60]	S, SA	578	578	12 mo	Yes	41.2
Sethuraman et al[55]	S, SF, SA	339	…	28 wk	Symptoms only	31–40
Dunayevich et al[61]	S, SF, SA	2,771	1,389	6–24 mo	Yes	23.3
Emsley et al[62]	FES, SA	57	28	24 mo	Yes	33.2
Oosthuizen et al[63]	FES, SF, SA	57	28	24 mo	Yes	…
van Os et al[56]	S	317	317	36 mo	Symptoms only	46.4
Docherty et al[64]	S, SA	578	…	12 mo	Yes	41.2
Emsley et al[65]	FES, SF, SA	462	246	12–24 mo	Yes	23
Wunderink et al[66]	FES, noA	149	125	18 mo	Yes	…

Abbreviations: FES = first-episode schizophrenia, noA = non–affective psychosis, S = schizophrenia, SA = schizoaffective disorder, SF = schizophreniform disorder.
Symbol: … = not reported.

Specific Aspects

Employment. No first-episode, multidiagnostic psychotic sample with employment data at long-term follow-up is available for comparison. Previous studies of individuals with first-episode schizophrenia report between 19%–29% to be occupationally engaged at medium and longer term follow-up.[10,13] We found a higher proportion with current employment at follow-up (39.2% overall and 36.3% among those with schizophrenia). Participation in employment at any time in the 2 years before assessment was 57% in schizophrenia, 54% in schizoaffective disorder, 62% in affective psychosis, and 68% in the group with other psychotic disorders. These proportions were higher than previously reported for individuals with first-episode schizophrenia (37%)[12] and individuals with schizophrenia in Australia (16%).[57] The higher proportion of employed participants at follow-up may indicate that early detection and specialized treatment could contribute to better vocational outcomes in first-episode schizophrenia and other psychotic disorders. However, the level of current employment for schizophrenia was still only about half of that reported for the Australian general population, which was 74% in the same period.[57]

Suicide rate. The suicide rate (2.3%) of the total cohort was relatively low at follow-up. This rate is lower than those observed in recent first-episode follow-up studies (10%[7] and 11%[19]) and the lifetime risk for suicide in schizophrenia (5%).[58] This finding is consistent with other reports of low rates among individuals treated by specialized early psychosis programs in the short-term[34] and at 5-year follow-up.[59]

Symptomatic remission and social/vocational recovery. Using operational criteria[30] at follow-up, symptomatic remission was achieved in 59% (BPRS) or 37% (BPRS + SANS) of the overall cohort, depending upon the criteria. The proportions of individuals with schizophrenia at baseline who achieved symptomatic remission were 50% (BPRS) and 29% (BPRS + SANS). These proportions are similar to the figures reported in previous studies that used the Andreasen and colleagues[30] criteria (Table 7, 23%–46%)[55,56,60–66]; however these studies comprised predominantly non–first-episode samples of short follow-up duration. These different symptomatic remission rates, depending upon the criteria used, underscore the importance of considering negative symptoms in any definition of symptomatic remission.

Few previous studies provide information on symptomatic remission and social/vocational recovery. Social/vocational recovery (QLS items) was observed in 31% of the cohort. A quarter of the cohort achieved both symptomatic remission and social/vocational recovery. Mason and colleagues[12] found that 17% of individuals with first-episode schizophrenia were free of symptoms and disability after 13 years. At 5-year follow-up, Robinson and colleagues[25] found symptomatic remission in 47% of individuals with first-episode schizophrenia spectrum disorder (schizophrenia or schizoaffective disorder) using the criteria proposed by Liberman and colleagues.[50] The rate of social recovery was 25%, as derived from the SAS, and 14% achieved both 2-year symptomatic remission and social recovery. Using similar definitions in the schizophrenia spectrum disorder subgroup (schizophrenia spectrum and schizoaffective), we found 30% with symptomatic remission (BPRS + SANS), 24% social/vocationally recovered (QLS items), and 17% achieved both symptomatic remission and social/vocational recovery. The Robinson and colleagues study[25] included a higher proportion of individuals with schizoaffective disorder (30%) than the present study (13%). This may explain the relatively high symptomatic remission rates in their study. Their cohort was diagnosed using Research Diagnostic Criteria,[67] a broad non-Kraepelinian definition of schizophrenia rather than the Kraepelinian *DSM-IV* diagnostic system applied in the current study. Hegarty and colleagues[2] found that regardless of treatment, individuals with schizophrenia diagnosed according to broad non-Kraepelinian criteria showed greater improvement compared to those diagnosed using the narrow Kraepelinian model.

The present study validates the remission criteria proposed by Andreasen and colleagues.[30] The relationship in this study between symptomatic remission and functional recovery highlights statistically significant and clinically relevant differences for the BPRS and the BPRS/SANS symptomatic remission definitions, which warrant further investigation.

Conclusion

Consistent with other follow up studies, significant numbers of patients with a diagnosis of schizophrenia achieved symptomatic remission at medium and long-term outcome.[20,29] Good social/vocational outcomes can be achieved despite not meeting symptomatic remission criteria. While the latter results especially are consistent with a beneficial effect of specialized early psychosis programs, the current methodology is unable to definitively examine this issue. Health services research designs are most appropriate.[28] Extending specialized early psychosis treatment beyond the first 2 years and providing specialized vocational programs may be crucial to build on the initial superior improvement in clinical and functional outcomes delivered by specialized care for individuals experiencing first-episode psychosis.[68,69] However, the current findings provide crucial prognostic information for patients, families, clinicians and researchers about the course and outcome of psychotic disorders from their onset.

Drug name: clozapine (Clozaril, FazaClo, and others).
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Appendix 1 appears on pages 727–728.
For the CME Posttest for this article, see pages 813–814.

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Appendix 1. Summary of Outcome Studies in First-Episode Psychosis With a Follow-Up Duration of 5 Years or Greater, Published From 1992 to 2009

Study	Diagnostic Range (% FES or FEnonAFF)	Diagnostic System	Baseline n	Follow-Up n	Attrition (%)[a]	Follow-Up Duration, y	Outcome
Scottish Schizophrenia Research Group[10]	FES	Feighner et al[70] and RDC[67]	44	43	2.3	5	30% no relapse; 19% employed; unemployment associated with relapse
Geddes et al[11]	FES	Feighner et al[70]	253	44 (subset of larger study)	…	7.3	19% not readmitted to hospital; women had shorter total duration of hospital admissions
Mason et al[12]	FES	*ICD-9*[71]	67	58	13.4	13	Illness course in last 2 years: 10% episodic, 34% continuous, 52% never psychotic; mean SANS total 3.9; GAF mean 58.7; 37% employed in last 2 years; 76% receiving psychiatric treatment; 64% receiving neuroleptic medication; 80% not hospitalized in last 2 years; 17% complete recovery (no symptoms, no disability, no treatment)
Zhang-Wong et al[13]	FES	PSE[72] and OPCRIT[73]	175	123	29.7	5	29% employed; 21% living with spouse/friend; 30% no medication
Wieselgren and Lindstrom[14]	FES	*DSM-III-R*[37]	120	101	15.8	5	30% good outcome, 14% poor, and 56% an intermediate outcome; 38% with no or mild symptoms; 27% employed; 40% taking classical neuroleptics, 33% taking clozapine, and 10% medication free with good outcome
Salokangas[15]	FES (% not reported), FESA	*DSM-III*[74] and RDC[67]	227	180	20.7	5	Better clinical and functional outcome found for those living with spouse
DeLisi et al[16]	FES (% not reported), FESA	*DSM-III-R*[37]	50	50	0	5	GAF mean = 61 (SD = 11.5); BPRS mean = 29 (SD = 6.0); 22 illness course types; 10% clinically recovered
Ganev et al[17]	FEnonAFF	PSE[72]	60	55	8.3	16	In the last 2 years, more than 50% had received a disability pension; 43.6% had held a job; 45.5% experiencing continuous psychotic symptoms, 38.2% no psychotic symptoms, and 12.7% episodic course; 25% of participants without psychotic symptoms had had negative symptoms; 64.8% taking continuous neuroleptic treatment; 74.5% had not been admitted to psychiatric hospital
Takei et al[18]	FEP (44.4)	PSE[72]	88	81	8.0	18	Overall, Afro-Caribbean individuals have worse outcome compared to white individuals
Wiersma et al[19]	FE non-affective functional psychosis	*ICD-9*[71]	82	63	23.2	15	Course of illness: 30.6% complete remission, 56.9% partial remission, and 12.5% continuously psychotic; negative syndrome developed after 1 or more psychotic episodes in 43%; 11% suicide
Harrison et al[20]	FEnonAFF	*ICD-9*[71]	1171	776	33.7	15–25	50.2% continually or episodically psychotic; GAF functioning mean = 50.7; GAF symptom mean = 54.0
Linszen et al[21]	FEP (68)	*DSM-III-R*[37]	97	63	35.1	5	25% no psychotic relapse; 50% episodic; 25% chronic illness course; schizophrenia group longest hospital stay; 50% paid work; 65% working in job that is lower than their educational level; 34% living with family; 40% living alone; 12% living with partner

(continued)

Appendix 1 (continued). Summary of Outcome Studies in First-Episode Psychosis With a Follow-Up Duration of 5 Years or Greater, Published From 1992 to 2009

Study	Diagnostic Range (% FES or FEnonAFF)	Diagnostic System	Baseline n	Follow-Up n	Attrition (%)[a]	Follow-Up Duration, y	Outcome
Svedberg et al[22]	FEP (61)	*DSM-IV*[38]	71	71	0 (medical record follow-up)	5	9% of schizophrenia and 39% of nonschizophrenia patients recovered (21% in overall cohort); 73% of schizophrenia and 47% of nonschizophrenia patients on disability allowance and unable to work; mean GAF score of 60 or higher in 22% with schizophrenia and 57% nonschizophrenia patients; schizophrenia group received 3 times as much inpatient care as nonschizophrenia patients; mean chlorpromazine equivalent dose similar between 2 groups (overall cohort mean 236 mg)
Möller et al[23]	FES (49), FESA, FEA	*ICD-9*[71]	374	146	61.0	15	Preliminary findings: Negative symptoms more frequent and prominent in schizophrenia group but not specific to schizophrenia; depression symptoms same in schizophrenia and affective groups, slightly more in schizoaffective; schizophrenia group had greater hospitalizations, longer duration of hospital stay, worse overall functioning, and greater illness severity
Stirling et al[24]	FES (83.7), FEnonAff	RDC[67] at baseline, *DSM-IV*[38] at follow-up	112	49 (subsample)	…	10	83.6% living independently for last 2 years; 87.7% receiving treatment; 2 to 3 median number of hospitalizations; 8.2% in continuous employment over last 2 years; 67% invalid pension for at least half follow-up duration
Robinson et al[25]	FES (not reported), FESA	RDC[67]	118	118	0	5	47.2% symptom remission for minimum of 2 years; 25% social/vocational recovery; 13.7% symptom and functioning recovery
Thara[26]	FES	PSE[72]	90	61	32.2	20	47% not in treatment; 71% GAF symptom over 60; 73.8% GAF functioning over 60; 39.3% episodic illness course with complete remission; 44.3% with partial remission; 75% men employed
Baldwin et al[27]	FEP (34)	*DSM-IV*[38]	194	194	0	8	Diagnostic stability present after 6 months; mean age of first presentation lower in males than females; a range in presentation of psychotic disorders with 39 cases of FEP in major depressive disorder
Bertelsen et al[28]	FEP (66.2)	*ICD-10*[75]	547	301	44.9	5	Participants randomly assigned to intensive early intervention program or standard treatment; the intensive early intervention program improved clinical outcome after 2 years but no difference found between the 2 groups after 5 years; at 5 years 4% of those in the intervention program and 10% from the standard treatment group were living in supported housing; at 5 years 61% of those in the intervention program and 59% from the standard treatment group were not working or studying
Crumlish et al[29]	FEnonAFF	*DSM-IV*[38]	118	67 or 77 (analysis dependent)	43.2 or 34.7 (analysis dependent)	8	At 8 years, 49% in clinical remission; PANSS positive symptoms mean = 11.6; PANSS negative symptoms mean = 13.4; QLS mean = 84; GAF mean = 64.1; 25.4% living in unsupported accommodation and 65.7% living with parents or other family

[a]Attrition: Those not followed-up due to drop-out, death, injury, or refusal.

Abbreviations: BPRS = Brief Psychiatric Rating Scale; *DSM-III-R* = *Diagnostic and Statistical Manual of Mental Disorders*, Third Edition, Revised; *DSM-IV* = *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition; FE = first-episode; FEA = first-episode affective psychosis; FEnonAFF = first-episode nonaffective psychosis; FEP = first-episode psychosis; FES = first-episode schizophrenia spectrum disorder; FESA = first-episode schizoaffective; GAF = Global Assessment of Functioning Scale; *ICD-10* = *International Classification of Diseases, Tenth Revision*; *ICD-9* = *International Classification of Diseases, Ninth Edition*; OPCRIT = Operational Criteria Checklist for Psychotic Illness; PANSS = Positive and Negative Syndrome Scale; PSE = Present State Examination; QLS = Quality of Life Scale; RDC = Research Diagnostic Criteria; SANS = Schedule for the Assessment of Negative Symptoms.

Symbol: … = not reported.