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Co-occurring first-episode psychosis and borderline personality pathology in an early intervention for psychosis cohort

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Abstract:

Introduction**:** Borderline personality disorder (BPD) is common among people diagnosed with first episode of psychosis (FEP), but is often under-recognised and under-researched. This study aimed to determine:(i) the prevalence of borderline personality pathology (subthreshold features and categorical disorder) in a FEP cohort (termed FEP+BPP); (ii) demographic and clinical factors associated with FEP+BPP; (iii) the symptomatic and functional outcomes.

Methods: This study was conducted within the Early Psychosis Prevention and Intervention Centre (EPPIC) at Orygen over the 30-month period between 2014 and 2016. BPP was evaluated by using the Structured Clinical Interview for DSM-IV Axis II Personality Questionnaire BPD criteria.

Results: In a cohort of 457 young people with a FEP (mean age 19.5yo, 56% male), 18.4% had borderline personality pathology (BPP). Compared with FEP alone, young people with FEP+BPP were more likely to be female, younger, Australian-born. In addition, young people with FEP+BPP were more likely to be diagnosed with Psychosis NOS, present with more severe hallucinations, and have alcohol abuse. Young people with FEP+BPP had more relationship difficulties at presentation and they were more likely to suffer of depression and to engage in self-harm throughout the follow-up. In relation to outcome, FEP+BPP was not associated with different rates of remission or relapse, however they were less likely to be admitted to hospital at presentation or involuntarily during their episode of care.

Conclusion: BPP is a common occurrence in psychotic disorders and is associated with more severe hallucinations and depression with higher risks of self-harm. Specific interventions need to be developed.

Key words: Borderline personality disorder, First episode of psychosis, Psychosis not otherwise specified, Depression, Self-harm

Introduction

Psychotic disorders and personality disorders have their onset during adolescence and emerging adulthood, and they are associated with severe morbidity and high mortality by suicide[1–3], especially when they co-occur with other disorders[4]. Indeed, personality disorders are a common comorbidity in individuals with psychotic disorders[5] and contribute significantly to the course and outcomes in terms of clinical and functional remission but also concerning risk of auto or heteroaggressiveness[6,7]. For example, antisocial personality disorder is a well-known risk factor for violence in individuals with a diagnosis of schizophrenia[8,9].

Despite this, there is still controversy about the concept of the co-occurrence of borderline personality disorder (BPD) and psychotic disorders. BPD originally described individuals who seemed to be on the border between neurosis and psychosis. This concept has later been replaced by an operationalized diagnosis[10,11], and it has been demonstrated that psychotic symptoms in BPD do not differ phenomenologically from those in schizophrenia spectrum disorders[12–16]. However psychotic features in BPD often continue to be labelled as "pseudo-psychotic symptoms", a term which can be misleading and stigmatizing[17]. Consequently, studies often exclude individuals with co-occurring BPD and psychotic disorders. Therefore, there are limited data on this population, with the few studies to date indicating that 38% of people with BPD have a comorbid diagnosis of psychotic disorder[18], while 17% of people with schizophrenia and 25% with first episode of psychosis (FEP) have been found to meet the criteria for BPD[19,20].

Among young people presenting to services, BPD is the most common and disabling personality disorder[21-22]. Interpersonal problems, distress, impulsivity and emotion dysregulation impact negatively on the quality of life and relationships, including with carers[22,23]. In addition, psychotic symptoms are associated with a more severe clinical presentation of BPD[24] and without the appropriate treatment, these impairments can persist for decades[25]. Thus, there is now a broad evidence-based consensus that early detection and intervention for BPD needs to be included in the care provided by services for young people, including early intervention for psychosis services[26,27].

There have only been a few, small studies that have focused on young people with psychotic disorders and concurrent BPD, and they have highlighted that this population have poorer

clinical and functional outcomes. Bahorik and Eack (2010) found that individuals with a diagnosis of schizophrenia spectrum disorder and concurrent BPD had more severe psychopathology, in particular hostility and suspiciousness, poorer functioning and higher readmission rates to hospital than individuals with a diagnosis of schizophrenia without BPD[19]. At the Early Psychosis Prevention and Intervention Centre (EPPIC) service, Gleeson et al. (2012) conducted a pilot study with 16 individuals with co-occurring FEP and BPD, and they found that this population had higher levels of depression, self-harm and forensic problems[28]. Furthermore, from the same centre, Francey et al. (2018) found that in the FEP cohort, approximately one quarter of young people had co-occurring BPD and this was associated with lower education levels, a higher prevalence of mood disorders and higher rates of substance use. Importantly, they also found higher rates of suicidal and violent behaviour in those with concurrent BPD and FEP[20].

Despite the finding that individuals with FEP and BPD have higher needs, there are no current guidelines to assist service providers to deliver appropriate care for these individuals. Moreover, it would appear that recommended treatment practices for psychotic disorders are not adhered to for individuals with concurrent BPD. Francey et al. reported that these individuals received either very low or very high doses of antipsychotic medication, compared with individuals with FEP alone[20], suggesting that the presence of BPD in psychotic disorders can have a significant impact on prescribing practice[29].

Therefore, this study aimed to determine: (i) the proportion of young people with co-occurring FEP and borderline personality pathology (BPP) (subthreshold features and categorical disorder) in an early intervention for psychosis service; (ii) whether there are differences in the demographic and clinical characteristics at presentation between the young people with concurrent FEP and BPP compared to those with FEP alone; (iii) the clinical and functional outcomes of the young people with concurrent FEP and BPP compared to FEP alone and (iv) the rates of hospital admission at presentation and during the episode of care for each group.
We hypothesized that the FEP+BPP group would have worse outcomes (ii and iii) due to the co-occurrence of pathologies.

Methods

Study population & Setting

The study was undertaken at EPPIC[30], an early intervention for psychosis service within Orygen, the state-funded specialist youth mental health service for 15-25 year-olds residing in Western and North-western metropolitan Melbourne, Australia. All young people who were clients of the EPPIC service over the 30-month period between 01.01.2014 to 31.05.2015 and also 01.12.2015 to 31.12.2016 were included in this study. The period between 01.06.2015 and 31.11.2015 was not included as the screening instruments were not utilized at this time. The EPPIC service provides care in a catchment of over 1.3 million residents. FEP was defined as full-threshold psychotic symptoms for a duration of at least a week. Sources of referral included local mental health services, general practitioners, law enforcement agencies, community support services, family members and friends, and self-referral. All young people with psychotic disorders were included, including drug-induced psychotic disorder.

Design and procedure

An audit tool was developed to extract the relevant data from clients' clinical files, which consisted of psychiatric assessment reports, inpatient admission and discharge summaries, EPPIC discharge summaries, and clinical notes. Assessments of borderline personality pathology were conducted at the time of entry to service, in addition to assessments of functioning. Furthermore, structured assessments of functioning were conducted at the time of discharge. All information was recorded prospectively, however some data was obtained by interpreting clinical notes, specifically the presence and severity of psychotic symptoms. Inter-rater reliability was calculated for the researchers extracting the information.

Instruments and methods for obtaining data

Diagnoses - Diagnoses of psychotic disorders and concurrent diagnoses, such as personality disorders or substance abuse disorders, were made by the treating consultant psychiatrist at three months after service entry and reviewed prior to discharge according to DSM-IV classification of mental disorders.

Borderline personality pathology (BPP) - The BPD screening instrument comprised the 15 BPD items from the Structured Clinical Interview for DSM-IV Axis II Personality Questionnaire (SCID-II-PQ)[31], which assess for the nine DSM-IV BPD criteria[32]. The 15 questions have a yes/no response format. A score greater than or equal to 13 strongly indicates a categorical diagnosis of BPD. A score of 11 or 12 was coding as sub-threshold BPD. This instrument has moderate sensitivity (0.64) and good specificity (0.85), with a high test-retest reliability (ICC=0.87) and overall diagnostic accuracy (0.80), and a fair to good agreement between the

criterion diagnosis (kappa=0.45). As an early prevention and intervention service, we chose to study the BPP in its entire spectrum from trait to disorder with a larger comparison sample. Therefore, individuals who had a score of ≥11 on the BPD screening instrument or had a diagnosis of BPD traits or pathology made by a consultant psychiatrist were classified as having 'borderline personality pathology'. Additional analyzes were still carried out with just the FEP+BPD group without sub-threshold BPD.

Psychotic symptoms - The Scale for the Assessment of Positive Symptoms (SAPS)[33] was used to measure positive psychotic symptoms at entry and every 3 months during the 2 years follow-up. The short form SAPS has been demonstrated to be valid with good reliability[34] and has four items relating to positive psychotic symptoms (hallucinations, delusions, bizarre behaviour, positive formal thought disorder). A participant was considered to be in remission if the rating given to all four positive symptoms on the SAPS were equal to or less than two. Relapse has been defined as a score of 3 or greater on any item of the short form SAPS that is sustained for at least one week.

Depression – The Patient Health Questionnaire (PHQ-9)[35] is a self-administered questionnaire which scores each of the nine DSM-IV criteria of depression as "0" (not at all) to "3" (nearly every day). PHQ-9 scores of 5, 10, 15 and 20 represent mild, moderate, moderately severe and severe depression, respectively.

Functioning - The Health of the Nation Outcome Scales (HoNOS)[36] was used to assess functioning at entry and discharge in regards to difficulties with relationship, activities of daily living and occupation. It was also used to determine the presence of any self-harm. The HoNOS was completed by the mental health clinician who worked closest with the young person.

Hospitalization - Admissions to a psychiatric inpatient unit were classified as being voluntary or involuntary according to notes contained within each patient's medical record. In addition, admissions were determined to have occurred either at presentation or after presentation to the service. In order to be classified as being admitted at presentation, the young person had to be hospitalised within 30 days of the date of registration. Orygen has a dedicated 16 bed inpatient unit and any admissions to other psychiatric units were also recorded.

Ethics

This study and its dissemination were founded on de-identified data. The protocol was performed in accordance with the Declaration of Helsinki and the Good Clinical Practice and received ethics approval from the Orygen Research Review Committee and then the Melbourne Health Human Research Ethics Committee (QA2019095). This retrospective file-audit did not

involve client's participation in the collection of research source data in which case there was no Participant and Consent Form and a waiver of consent was granted.

The data that support the findings of this study are available from the corresponding author upon reasonable request[37,38].

Statistical analyses

Statistical analysis was conducted using SPSS v24. Descriptive analysis was initially performed to determine if data was parametric or non-parametric and the appropriate statistical test. T-tests and chi-square analysis were used to determine if differences exist between groups for parametric continuous variables and categorical variables respectively. Cox regression analysis was used to determine the hazard ratios for outcome variables that may have occurred during the episode of care, such as relapse or admission, as there was variable time to follow-up for these outcomes. For outcomes that were only assessed at discharge, such as problems with self-harm, Chi-square analysis was performed and odds ratio calculated.

Results

Description of participants and prevalence of BPP

During the study period, 525 young people presented with FEP and of these, 87.0% (n=457) had an assessment of borderline personality pathology (BPP) and were therefore included in this study. 18.4% (N=84) had concurrent BPP: 58 had BPD (score of ≥13 on the BPD screening instrument) and 26 had sub-threshold BPD.

Demographic & clinical characteristics at presentation

The comparisons of demographic and clinical characteristics at presentation between the FEP +BPP group and the FEP alone group are presented in **Table 1**. Young people presenting with FEP+BPP compared to FEP alone were more likely to be younger (mean 18.7 vs 19.5 years old), female (OR=3.33, 95% C.I. 2.04–5.56) and to be born in Australia (OR=3.44, 95% C.I. 1.69–7.14). At the time of presentation, there was a trend for more FEP+BPP young people to be in education and employment (0R=1.61, 95% C.I. 0.99-2.63). People with FEP+BPP had more difficulties in relationship (OR=2.32, 95% C.I. 1.3-4.13).

Young people with FEP+BPP were more likely to have a diagnosis of Psychosis Not Otherwise Specified (PNOS) (41.7% vs 11%) and they were less likely to have a diagnostic of schizophrenia (15.5% vs 24.4%) than people with FEP only. Concerning psychotic symptom at presentation, people with FEP+BPP experienced more severe hallucinations and less severe delusions, bizarre behaviour and thought disorder. In addition, young people with concurrent BPP were more likely to have alcohol abuse (OR=1.8, 95% C.I. 1.03-3.19). Young people with concurrent FEP and BPP were more likely to have severe depressive symptoms at the time of presentation compared to the young people with FEP only (21.25 vs 16.24, p<0.001) and they were more likely to have moderate to severe problems with self-harm (OR=5.31, 95% C.I. 2.97 – 9.5, p<.001).

At the time of presentation, young people with FEP+BPP were less likely to be admitted to hospital (25.0% vs 47.7%, OR=0.37, 95% C.I. 0.21 – 0.62, p<.001) and to have an involuntary admission (9.6% vs 33.4%, OR=0.21, 95% C.I. 0.10–0.46, p<.001).

Clinical and functional outcomes during follow-up and at discharge

Remission of psychotic symptoms and relapse rates

The median time to follow-up was 644 days (I.Q.R=420-737) and there was no difference between groups in relation to time to follow-up (p=0.81). The clinical and functional outcomes of the two groups are presented in **Table 2.** At 12 weeks, there was data for 79.6% (n=364) participants in relation to severity of psychotic symptoms and 51.4% (n=36) of those with FEP+BPP had achieved remission of symptoms compared to 61.2% (n=180) of those with FEP alone (OR=1.49, 95% C.I. 0.88–2.52, p=0.13). During the total follow-up period, 25.0% (n=21) of those with FEP+BPP experienced a relapse compared to 31.9% (n=119) of the FEP only group (HR=0.75, 95% C.I. 0.47–1.20, p=0.20).

Depression and self-harm at discharge

56.5% (n=26) of young people with FEP+BPP had moderate to severe levels of depression at discharge compared with 22.7% (n=55) of those with FEP only (OR=4.42, 95% C.I. 2.30–8.52, p<.001). In relation to self-harm, young people with FEP + BPP were over ten times more likely to have moderate to severe problems with self-harm compared to young people with FEP only (22.4% vs 2.8%, OR=10.2, 95% C.I. 3.73-28.0, p<0.001).

Hospitalisation during follow-up

During the episode of care and excluding any admission that occurred at presentation, there was no difference in the admission rates for young people with FEP+BPP compared to FEP alone (39.3% vs 42.4%, OR=1.02, 95% C.I. 0.68-1.52, p=0.94). However, young people with FEP+BPP were less likely to be admitted involuntarily during their episode of care (11.9% vs 22.5%, HR=0.47, 95% C.I. 0.23-0.98, p=0.04).

Functional outcomes at discharge

There was a non-significant trend for young people with FEP+BPP to have difficulties in relationships compared to those with FEP alone (52.1% vs 37.6%, OR=1.80, 95% C.I. 0.97 – 3.36, p=.06). There was no difference between groups in relation to the presence of difficulties in relation to activities of daily living or occupation.

Supplementary analyses comparing FEP+BPD (without sub-threshold BPD) and FEP only

Concerning demographic and clinical characteristics at presentation presented in supplementary Table 1, we found the same differences between the FEP+BPD group (n=58) and FEP only (n=373) than FEP+BPP (n=84) versus FEP only except concerning the alcohol abuse and the severity of delusions for which there was no longer any significant difference.

Concerning the other outcomes, we had lost the significant difference between the groups concerning: the rate of involuntary admission during episode of care (p=0.13), the level of depression (p=0.57) and self-harm (p=0.27, 18.8% vs 2.8%) at discharge.

Discussion

Summary of findings

In summary, young people with FEP and BPP were more likely to be female, to present at a younger age, and to be born in Australia, compared with young people with FEP without BPP. The co-occurrence of FEP and BPP had a significant negative impact only on some clinical and functional outcomes. Young people with FEP and BPP were more likely to have more severe hallucinations, be diagnosed with Psychosis NOS and to have concurrent alcohol abuse. At presentation, young people with FEP and BPP had higher levels of depression and self-harm and this association continued at follow-up. In relation functioning, they had more difficulties in relationships at presentation. Finally, young people with FEP and BPP were less likely to be admitted to hospital, including involuntary admissions, compared to those with FEP alone.

Comparison to previous literature

In clinical practice, persistent auditory verbal hallucinations are the most common form of psychotic symptoms in BPD[39,40] and studies have reported a prevalence of between 29% to 50% in adult cohorts with BPD [16,39,41]. It has also been established that auditory verbal hallucinations in BPD emerge at a younger age than in schizophrenia[14,40] and findings of this study are in keeping with this. It should be noted that the phenomenology of auditory verbal hallucinations is similar in both borderline personality disorder and schizophrenia.[42] Our findings that young people with FEP+BPP have more relationship difficulties was also expected, as this is consistent with the diagnostic criterion for BPD, viz. a pattern of unstable and intense interpersonal relationships.[32,39] However, in this study, those with FEP+BPP had a non-significant trend to be more in education and employment than those with FEP only, this may have been related to the younger age of the cohort, which would have meant that they remained in education throughout their episode of care. Additionally, those with FEP+BPP had less delusions, bizarre behaviour and thought disorder, which can all impair functioning. The clinically important difference between the groups was the higher rate of depression and self-harm in those with FEP+BPP, which replicates the finding by Francey et al. [20]. This is a striking finding, as young people with a FEP already have high rates of depression and self-harm [43,44], emphasizing that those with FEP+BPP have exceptionally high rates. Even if the difference was no longer significant for the FEP+BPD subgroup at discharge, the rates remained much higher with probably a lack of power due to the small sample. Considering this, the finding of a lower hospitalization rate in those with FEP+BPP is somewhat counterinitiative, as they present with even higher rates of self-harm. Bahorik's study[19] found higher admission rates in patient with SCZ and BPD with a semi-structured interview method while our study concerns the entire spectrum of BPP from trait to disorder with probably less severe forms. Francey et al.[20] also found lower rates of involuntary admission at presentation (during the first 3 months of care) in young people with FEP+BPD and made the assumption that these population might not receive guideline-concordant clinical care. This might involve discriminatory practices toward those with BPD, such as denying them admission to hospital.

Clinical implications

Borderline personality pathology is highly prevalent in FEP and there are some demographic and clinical factors that are seen in individuals with this comorbidity. This finding supports the need to develop adapted, specific and non-stigmatizing care for this cohort. In a pilot study of 16 young patients with FEP and BPP, Gleeson and al.[28] demonstrated the efficacy and

feasibility of a brief and hybrid psychosocial program combining elements of early intervention for BPD within a specialized FEP intervention. In addition, a placebo controlled randomized trial of the effectiveness of aripiprazole for auditory verbal hallucinations in young people with concurrent BPD and FEP is underway[45].

While these specific interventions are needed, there also needs to be a change in the culture and attitudes towards the co-occurrence of borderline personality pathology and psychotic disorders. Despite it being demonstrated that co-morbidity in psychotic disorders is commonplace, with at least two-thirds of people with a FEP having a co-morbid mental health or substance use disorder [46], it still remains controversial that BPP and FEP can co-exist [17,18]. Therefore, alongside the development of specialized interventions there needs to be the acknowledgement and willingness of mental health services to provide care to this specific cohort of young people.

Strengths and Limitations

The strengths of our study are that we had a large sample size and included consecutive cases of FEP and therefore, the cohort should be representative of young people presenting with FEP in the catchment. Nevertheless, the findings from our study need to be considered within the methodological limitations. First, there was missing data for some participants at follow-up. Second, we used screening instrument and clinical assessment as the criteria for BPP, without a structured interview method to differentiate prodrome of psychosis and BPD. Nonetheless, the SCID-II PQ-BPD screening instrument has acceptable psychometric properties, including an acceptable kappa with a semi-structured gold standard interview diagnosis. Third, the assessment of functioning was conducted by clinicians and while they would have had good knowledge of the participant, there is the potential of bias in this method.

Conclusion

Borderline personality pathology is a common occurrence in psychotic disorders and is associated with more severe hallucinations and depression with higher risks of self-harm. Specific interventions for this sub-group of young people with a first episode of psychosis need to be developed and evaluated.

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Table 1: Demographic and clinical characteristics of total cohort, FEP only and FEP + BPP at time of presentation								
	Total Cohort N= 457		FEP + BPP N=84		FEP only N = 373		P	Statistical test of difference
	Mean	s.d.	Mean	s.d.	Mean	s.d.		t-test
Age (years)	19.5	2.9	18.7	3.1	19.7	2.8	**.002**	t=-3.05, df=455
Sex	N	%	N	%	N	%		OR (95% C.I.)
Male	256	56.0	27	32.1	229	61.4	**<0.001**	**0.30 (0.18-0.49)**
Female	201	44.0	57	67.9	144	38.6		
Marital Status*							.40	
Not married or de-facto	432	94.5	82	97.6	350	93.8		-
Married / De-facto	16	3.5	2	2.4	14	3.8		
Separated or divorced	6	1.3	0	0.0	6	1.6		
Employment status								
Not in Education/ employment (NEET)	212	46.9	31	37.3	181	49.1	**.05**	**0.62 (0.38-1.01)**
In Education/ employment	240	53.1	52	62.7	188	50.9		
Family history								
1st Degree relative with psychotic disorder	73	16.0	15	17.9	58	15.5	.60	
No family history in 1st degree relative	384	84.0	69	82.1	315	84.5		
Migrant status								
First generation migrant	119	26.0	9	10.7	110	29.5	**<0.001**	**0.29 (0.14-0.59)**
Born in Australia	338	74.0	75	89.3	263	70.5		
Diagnoses							**<0.001**	
Schizophrenia	104	22.8	13	15.5	91	24.4		-
Schizophreniform disorder	70	15.3	5	6	65	17.4		
Drug-induced psychotic disorder	61	13.3	11	13.1	50	13.4		
Psychosis NOS	76	16.6	35	41.7	41	11.0		
Brief Psychotic disorder	8	1.8	0	0.0	8	2.1		
Delusional disorder	6	1.3	0	0.0	6	1.6		
Schizoaffective disorder	29	6.3	0	0.0	29	7.8		
Bipolar affective disorder	38	8.3	3	3.6	35	9.4		
Depression with psychosis	43	9.4	11	13.1	32	8.6		
Not differentiated	22	4.8	6	7.1	16	4.3		
Any Concurrent substance abuse								

Any alcohol or substance abuse	273	62.0	49	62.0	224	62.0	.99	0.99 (0.61–1.65)
Alcohol abuse present	79	17.3	21	**25**	58	15.5	**.04**	1.80 (1.03-3.19)
Cannabis abuse present	241	52.7	42	50.0	199	53.4	.58	0.87 (0.54-1.40)
Amphetamine abuse present	134	29.3	28	33.3	106	28.4	.37	1.26 (0.76-2.09)
Severity of psychotic symptoms (SAPS)	Mean	s.d.	Mean	s.d.	Mean	s.d.		t-test
Hallucinations	2.9	1.7	3.6	1.3	2.8	1.8	**<0.001**	3.9, 444
Delusions	3.2	1.7	2.3	1.8	3.4	1.6	**<0.001**	-5.82, 447
Bizarre behaviour	1.7	1.9	0.8	1.5	1.9	1.9	**<0.001**	-5.03, 446
Formal thought disorder	1.3	1.7	0.4	1.0	1.4	1.7	**<0.001**	-5.11, 442
Depression	Mean	s.d.	Mean	s.d.	Mean	s.d.		t-test
PHQ9 score (N=161)**	18.3	6.2	21.3	3.7	16.3	6.7	**<0.001**	5.47, 159
	N	%	N	%	N	%		OR (95% C.I.)
Moderate to severe depression (HoNOS) (N=314)	187	59.6	50	83.3	137	53.9	**<.001**	4.27 (2.08–8.79)
Moderate to severe problems self-harm (HoNOS) (N=339)	75	22.1	33	49.3	42	15.4	**<.001**	5.32 (2.97–9.50)
Admission to hospital								
Any admission to hospital at presentation (N=453)	197	43.5	21	25.0	176	47.7	**<.001**	0.37 (0.21–0.62)
Involuntary admission at presentation (N=427)	123	28.8	8	9.6	115	33.4	**<.001**	0.21 (0.10–0.46)
Functioning at presentation (HoNOS)								
Difficulties in relationships (N=339)	180	53.1	45	69.2	135	49.3	**.004**	2.32 (1.30-4.13)
Difficulties in activities of daily living (N=338)	119	35.2	18	27.3	101	37.1	.13	0.64 (0.35–1.15)
Difficulties in occupation (N=334)	160	47.9	36	54.5	124	46.3	.23	1.39 (0.81–2.39)

* Data available for 454 participants,
** There were 161 participants with completed PHQ9 questionnaires, 97 in the FEP alone group and 64 in the FEP & BPP

Table 2 : Clinical and functional outcomes of those with FEP + BPP compared to FEP only

	Total Cohort		FEP + BPP		FEP only		P	Statistical test of difference
Remission (N=364)	N	%	N	%	N	%		OR (95% C.I.)
Achieved by week 12	216	59.3	36	51.4	180	61.2	.13	1.49 (0.88 – 2.52)
Not achieved by week 12	148	40.7	34	48.6	114	38.8		
Relapse rates (N=457)	N	%	N	%	N	%		HR (95%C.I,)
Relapsed within follow-up period	140	30.6	21	25.0	119	31.9	.22	0.75 (0.47-1.20)
Did not relapse within follow-up period	317	69.4	63	75.0	254	68.1		
Depression (HoNOS) (N=288) at discharge								OR (95% C.I.)
Moderate to severe depression	81	28.1	26	56.5	55	22.7	**<0.001**	**4.42 (2.30 – 8.52)**
Nil or minimal depression	207	71.9	20	43.5	187	77.3		
Self-harm (HoNOS) (N=303) at discharge								
Moderate to severe problems	18	5.9	11	22.4	7	2.8	**<.001**	**10.21 (3.73 – 28.00)**
Nil or minimal problems	285	94.1	38	77.6	247	97.2		
Admission to hospital – excluding at presentation								HR (95% C.I.)
Any admission to hospital during episode of care (N=454)	190	41.9	33	39.3	157	42.4	.94	1.02 (0.68 – 1.52)
Involuntary admission during episode of care (N=457)	94	20.6	10	11.9	84	22.5	**.04**	**0.47 (0.23 – 0.98)**
Functioning at discharge (HoNOS)								
Difficulties in relationships (n=298)	179	60.1	25	52.1	94	37.6	.06	1.80 (0.97 – 3.36)
Difficulties in activities of daily living (n=303)	77	25.4	11	22.4	66	26.0	.60	0.83 (0.40-1.71)
Difficulties in occupation (n=302)	118	39.1	19	38.8	99	39.1	.96	0.96 (0.53-1.85)