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Title:
Does co-occurring borderline personality disorder influence acute phase treatment for first-episode psychosis?

Date:
2018-12-01

Citation:
Francey, S. M., Jovev, M., Phassouliotis, C., Cotton, S. M. & Chanen, A. M. (2018). Does co-occurring borderline personality disorder influence acute phase treatment for first-episode psychosis?. Early Intervention in Psychiatry, 12 (6), pp.1166-1172. https://doi.org/10.1111/eip.12435.

Persistent Link:
https://hdl.handle.net/11343/292916

Abstract

Aim:

This aims of this study were: (i) to determine the prevalence of co-occurring borderline personality disorder (BPD) in a first episode psychosis sample; (ii) to determine differences between patients with and without BPD on demographics, comorbidities and clinical risks and other variables; and (iii) to examine whether BPD co-morbidity influenced treatment received by patients for first episode psychosis during their first three months after service entry to a specialist early psychosis service.

Methods:

A file audit was conducted for 100 consecutive admissions to an early psychosis service. Patients with a clinician-rated co-occurring diagnosis of BPD were compared with patients without clinician-rated BPD on a range of variables.

Results:

Twenty-two percent of the FEP sample was diagnosed with co-occurring BPD by clinician ratings. The FEP group with co-occurring BPD was found to be younger, more likely to have other comorbidities, and were at higher risk of suicide and violent behaviour. Group differences were found in treatment received for FEP, whereby patients with co-occurring BPD had poorer access to standard treatment, including guideline concordant antipsychotic medication prescription.

Conclusion:

Young people with co-occurring clinician-rated BPD and FEP experienced greater difficulty accessing standard care for FEP and received relatively different treatment, including different pharmacotherapy, compared with those FEP patients without BPD. There is a need to develop new clinical guidelines and effective treatments for this specific subgroup with early psychosis and co-occurring BPD that take into account interpersonal and 'premorbid' aspects of their presenting problems.

Key words: First episode psychosis, Borderline personality disorder, comorbidity, treatment

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/eip.12435

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Introduction

There is evidence that personality factors contribute significantly to the aetiology, course, and outcome of psychotic disorder [1-3]. Moreover, there is increasing interest specifically in the co-occurrence of BPD and psychotic illnesses such as schizophrenia [4-6]. However, to date, no research has examined whether co-occurring (comorbid) personality disorder influences treatment received for psychosis.

The *Australian Clinical Guidelines for Early Psychosis* (ACGEP[7]) provide six general strategies for interventions in first-episode psychosis: (i) engaging with and developing a supportive therapeutic alliance with the patient; (ii) using a balanced biopsychosocial approach; (iii) using a low dose antipsychotic medication; (iv) developing an awareness of the phases of illness; (v) ensuring continuity of care; and (vi) involving family and friends in the therapeutic process. Evaluations of the effects of the implementation of these guidelines on the provision of early psychosis services have indicated improvements in services received. For example, one study [8] found improvement in psychosocial and family intervention, prescribing practices and continuity of care following the introduction of a specialised FEP service. Another study [9], reported improvement in psychiatric symptomatology (especially negative symptoms) among patients in treatment. Other improvements in patient outcomes include reduced re-admission rates and less use of supported accommodation in those treated in specialised early psychosis programmes [10]. Thus the implementation of guidelines has led to a range of improved outcomes in FEP. However, it is not known whether the presence of comorbidities alters the application guideline principles or the effectiveness of guideline-based treatments.

Clinical experience suggests that further development of treatment guidelines is required to assist clinicians to deal with different presentations of FEP, including when comorbidities (such as personality disorders) are present, although there is a paucity of published data on these comorbidities. The second edition of the ACGEP [11], published in 2010, was significantly more comprehensive in its clinical scope, but no reference was made to managing co-occurring personality pathology or disorder. This omission is especially important because both BPD and psychotic disorders have their onset during adolescence and emerging adulthood [12, 13] and clinical experience has demonstrated that they co-occur in a proportion of young people attending the EPPIC service, a specialist early intervention services for FEP in Melbourne, Australia. In addition, the clinical features

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of BPD such as interpersonal problems, impulsivity, emotion dysregulation and aggression [14] are likely to influence the therapeutic relationship and potentially, the delivery of treatment.

There has been a rapid increase in evidence establishing that BPD can be diagnosed prior to age 18 years and that BPD in young people is both continuous with BPD in adults and more notable for its similarities to BPD in adults than for any differences [15]. This knowledge has been integrated into national BPD treatment guidelines [16, 17]. BPD has distinctive cognitive and perceptual features [18], of which the most prominent and clinically contentious are psychotic symptoms, especially auditory verbal hallucinations [5]. Until recently, psychotic symptoms in BPD were believed to be brief, less severe, and qualitatively different from those in 'true' psychotic disorders, such as schizophrenia [19]. However, recent empirical studies have demonstrated that they are phenomenologically indistinguishable [4, 19-22]. In clinical practice, psychotic symptoms in BPD have sometimes been assumed to be unresponsive to treatment with antipsychotic medication [23], but this has never been tested in a randomised controlled trial. Moreover, there is evidence that the diagnosis of BPD, with its characteristic features of emotion dysregulation, excessive anger, rejection sensitivity, and impulsivity is stigmatised and that adult BPD patients experience more social rejection, less optimism and more negativity from their mental health clinicians than those with a diagnosis of schizophrenia [24, 25] Together these findings suggest the possibility that comorbid BPD in FEP might lead to divergence from guideline concordant treatment. [26]

Although the severe morbidity and high mortality associated with both psychosis and BPD are well known, few studies have carefully assessed their overlap and the risks associated with their co-occurrence and no study has systematically evaluated their co-occurrence [27]. The multi-centre UK 700 case management trial found that 28% (*n* = 186) of 670 patients with a diagnosis of a psychotic disorder screened positive for a co-occurring personality disorder [28]. Additionally, 19% of the personality disordered patients engaged in suicidal behaviour over the 2-year follow-up period, compared with only 9% of non-personality disordered patients. The patients with a co-morbid PD spent twice the number of days in hospital (105 days), compared with patients without a PD (56 days), over the 2-year follow-up period [29]. There is also evidence that individuals with schizophrenia and co-occurring BPD have poorer long-term outcome [1], making this an important area of enquiry.

This study investigated the prevalence of co-occurring BPD in an FEP sample, compared the group with co-morbid BPD to those without, and examined the influence of this co-occurrence on the actual FEP treatment received during the initial three months after diagnosis with FEP.

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Method

Participants

One hundred consecutive admissions to the Early Psychosis Prevention and Intervention Centre (EPPIC) in Melbourne, were invited to participate in the study. Eligibility for EPPIC is defined as: aged 15-25, residing in the west and north-west area of metropolitan Melbourne, Australia, one week or more of positive psychotic symptoms, and less than 6 months of prior treatment with antipsychotic medication. Study participation involved an interview comprising semi-structured measures of psychopathology and functioning, including the Structured Clinical Interview for DSM IV Axis II disorders (SCID II [30]). From the pool of 100 admissions, 39 participants consented to the study interview, and were assessed with the structured instruments described below. A file audit, using a structured and standardised audit form (described below) was conducted for all 100 cases in order to document treatment received in the first three months post-admission.[30].

The study was approved by the Melbourne Health Human Research Ethics Committee.

Measures

File Audit Form

This form enabled a standardised, systematic audit of treatment received and functional outcome from the clinical file. The Audit Form was based on a synthesis of a number of tools used in previous studies at EPPIC [31-33] examining outcomes in relation to treatments received, and is available from the authors upon request.

BPD Screening by Mental Health Clinicians

Clinical case managers in the EPPIC program were asked to identify clients within their caseloads who might have co-occurring BPD features, and to complete the SCID-II PQ BPD screening tool for these clients. This instrument comprises a list of 15 yes/no items, derived from the nine DSM-IV BPD diagnostic criteria and has good psychometric properties in outpatient youth [34]. Cases were considered to reach threshold for the BPD diagnosis if the treating clinician endorsed the presence of at least five DSM-IV BPD criteria.

Interview Measures

The Structured Clinical Interview for DSM-IV Axis II patient version (SCID-II[30]) [30]was administered to determine personality disorder diagnoses in those who consented to diagnostic interview.

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Data Analysis

The main independent variable of interest was group with two levels: FEP patients with clinician-rated BPD (FEP+CR-BPD) and without BPD (FEP alone). There were several dependent variables including: demographic variables, co-morbid mental illness diagnoses, and treatments received. For dependent variables that were measured on a continuous scale, group differences were assessed using independent samples *t*-tests. For variables that were significantly skewed, data was transformed (i.e., log transformation) prior to conducting the *t*-tests. For dependent variables that were categorical in nature, chi-square (χ^2) analysis was used, except where the expected frequency counts were less than 5, when Fisher's exact test was used. Because of the exploratory nature of this study, alpha (α) for the analyses was set at the .05 level and no adjustments were made for multiple comparisons.

Results

Comparison between those who completed SCID II interviews and those who did not

Thirty-nine participants were interviewed with the SCID II. There were no significant differences between those who were interviewed with the SCID II and those who were not with respect to age, gender distribution, employment status, years of education or accommodation type. However, for country of birth, 100% of those who completed the SCID II interview (n = 38) versus 75.4% of those who did not (n = 43, N = 56) were born in Australia [χ^2 (1) = 10.95, p = .001]..

Prevalence of co-occurring CR-BPD

Of the 100 cases audited, clinician-derived PD diagnostic information was not available for 5 people. Treating clinicians identified 25.3% (*n*=24) of the total sample as meeting criteria for DSM-IV BPD. Forty-one percent (*n*=39) of the sample consented to the study assessment interview and 20.5% (*n*=8) of this subsample met SCID-II criteria for BPD. Thirteen cases identified by case managers as having BPD were among this sample of 39 participants who were interviewed with the SCID II. Of these 13 participants, 46.2% (*n*=6) met the full threshold BPD diagnosis using the SCID II interview. The level of agreement between the different methods of diagnosis was fair to good (Cohen's kappa κ = 0.42) according to Fleiss' criteria [35] which is consistent with other studies of inter-rater reliability for PD diagnoses [36]. Sensitivity of the clinician-rated diagnosis was 75% (95% CI 34.9% - 96.8%) and specificity was 76.7% (95% CI 57.7% - 90.1%). Clinician-derived diagnosis was used in subsequent analyses because this was available for the entire sample.

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Comparison between the two groups

The two groups (FEP+CR-BPD, *n*=24 and FEP alone, *n*=71) were compared on a range of demographic variables. Table 1 shows no significant group differences for gender, country of birth, employment status, type of accommodation, and whom they were living with. The FEP+CR-BPD group were significantly younger (*t* (93) =2.14, *p*=.035), and were less likely to have completed post-secondary education (χ^2(1, *N*=94) =8.31, *p*=.004), than the FEP alone group.

Mental state and personality disorder diagnoses at initial assessment were extracted from the clinical file. Given that patients could have more than one personality or mental state diagnosis, analyses were conducted separately for each diagnostic category. The FEP+CR-BPD group had significantly higher rates of mood disorder (FEP+CR-BPD 50.0%, *n*=12; FEP alone 25.4%, *n*=18; χ^2(1, *N*=95)=5.04, *p*=.025), substance dependence disorder (FEP+CR-BPD 29.2%, *n*=7; FEP alone 2.8%, *n*=2; Fisher's exact test, *p* = .001), and substance abuse disorder (FEP+CR-BPD 20.8%, *n*=5; FEP alone 1.4%, *n*=1; Fisher's exact test, *p* = .004) than the FEP alone group. The FEP+CR-BPD group were also statistically more likely to have an additional diagnosis of antisocial personality disorder, compared with the FEP alone group (FEP+CR-BPD 20.8%, *n*=5; FEP alone 0.0%, *n*=0; Fisher's exact test, *p* = .001).

Other noteworthy differences between the groups at the initial assessment were that the FEP+CR-BPD group were more likely to be assessed as at risk for suicide attempts and violence (suicide attempts FEP+CR-BPD 70.8%, *n*=17; FEP alone 23.9%, *n*=17; χ^2(1, *N*=95)=17.61, *p*<.001; violence FEP+CR-BPD 33.3%, *n*=8; FEP alone 7.0%, *n*=5; Fisher's exact test, *p*=.003, respectively), and that they had a higher rate of alcohol use (FEP+CR-BPD 75.0%, *n*=18; FEP alone 42.3%, *n*=30; χ^2(1, *N*=95) = 7.70, *p*=.006). They were also more likely to have had a psychiatric inpatient admission prior to referral to EPPIC (FEP+CR-BPD 41.7%, *n*=10; FEP alone 15.5%, *n*=11; χ^2(1, *N* =95) = 7.14, *p*=.008).

Treatment Differences

Treatment differences were examined by selecting audit items that corresponded to the treatment recommendations derived from the ACGEP strategies by Gorrell et al (2004) [8]. Strategies Four (Awareness of Phase of Illness) and Five (Continuity of Care) were not assessed, as these relate to more longitudinal aspects of FEP service provision.

Engagement (First strategy)

Relevant audit items for this general strategy included early access to treatment, number and length of inpatient admissions and traumatic treatment-related events during the first 3 months of care.

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The FEP+CR-BPD group had poorer access to treatment for FEP than the FEP alone group. They accessed more agencies in their pathway to care (FEP+CR-BPD *M*=2.2, *SD*=0.9; FEP alone *M*=1.7, *SD*=0.8; *t*(93)=-2.62, *p*=.010) and experienced a longer delay between their first contact with the service and commencement of treatment (FEP+CR-BPD *M*=149.8 days, *SD*=306.6; FEP alone *M*=57.1 days, *SD*=162.2; *t*(93)=-3.27, *p*= 002, analysis based on log10+1 transformed data due to extreme skewness) than the group without BPD. However, there were no differences between the groups in number of inpatient admissions or total duration of inpatient admissions. The FEP+CR-BPD group had significantly fewer days as an involuntary inpatient (FEP+CR-BPD *M*=2.1 days, *SD*=5.8; FEP alone *M*=14.9 days, *SD*=127.5; *t*(85.4)=-3.69, *p*<.001), and they were less likely to be an involuntary patient treated in the community (FEP+CR-BPD 0.0%, *n*=0; FEP alone 16.9%, *n*=12; Fisher's exact test, *p* = .031). There were no differences between the groups in the experience of police involvement, ambulance transport, involuntary status, physical restraint, suicide attempts or self-harm during the first week of treatment (all Fisher's exact test, *p* > .05).

Biopsychosocial Approach (Second strategy)

Evidence of a biopsychosocial approach comes from the provision of comprehensive assessments including physical health and substance use, and a range of individual and group interventions. No differences were found between the groups in these areas. There were also no differences between the groups in the proportion who received psychoeducation about their illness (Fisher's exact test, *p* = .101), or whose families/carers received psychoeducation (Fisher's exact test, *p* = .243). Moreover, there were no significant differences between the two groups with respect to the type of psychosocial therapies received, receipt of any psychotropic medication in the first week of treatment, and contacts with medical doctors (all p>0.10).

Low-Dose Antipsychotics (Third strategy)

Prescription of low dose atypical antipsychotic medication is recommended in FEP[8]. Twenty-three participants were excluded from this analysis of medications prescribed because they were enrolled in a clinical trial in which they were allocated antipsychotic medication according to a study protocol[37].

Medication prescription was assessed at weeks 1, 4 and 12 (see Table 2). At week one, the FEP+CR-BPD group was significantly more likely to be on antidepressants (Fisher's exact test, *p* = .016). At weeks one and four, the FEP+CR-BPD group was significantly less likely to be prescribed antipsychotic medication (Fisher's exact test, *p* = .001). No group differences were observed at the 12-week time point. Although there was no difference in antipsychotic dose prescribed between

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groups, the FEP+CR-BPD group received both a higher mean antipsychotic dose and greater variation in antipsychotic dose, as demonstrated by the larger standard deviations for this group at all time points (Table 2). The FEP+CR-BPD group were also more likely to experience severe medication side effects (Fisher's exact test, p = .044).

Family Involvement (Sixth Strategy)

There were no differences in family involvement in treatment between groups, including psychoeducation provided to family (Fisher's exact test, p=.101) or family therapy received (Fisher's exact test, p=1.00).

Discussion

This study of a consecutive series of 100 young people admitted to a specialised early psychosis service in Melbourne, Australia, involved examination of the prevalence of BPD and the association between co-occurring BPD and treatment received for first episode psychosis. To the authors' knowledge, this is the first time the relationship between co-occurring BPD and treatment received for FEP has been examined. Three key findings emerge from this study. First, young people with co-occurring clinician-rated BPD comprised one quarter of FEP service users. Second, there were significant differences between the two groups with respect to presentation characteristics. Third, there were clinically important differences in the treatment received during the acute phase of illness among young people with combined clinician-rated BPD and FEP, compared with those with FEP without a co-occurring clinician-rated diagnosis of BPD.

BPD is a common problem among FEP service users. Moreover, the additional BPD diagnosis is associated with important clinical differences that present a range of difficulties and challenges for service providers, and which make this a high-need patient group, warranting specific clinical attention. Currently, there are no guidelines to assist clinicians to frame treatment goals and priorities for patients with FEP and BPD and the development of such guidelines seems imperative. The FEP+CR-BPD group were significantly younger, less likely to have completed high school and were more likely to be diagnosed with co-occurring depression, substance use disorders and antisocial personality disorder. FEP+CR-BPD patients were also assessed by clinicians to be at higher risk of suicide and violent behaviour. Paradoxically, they were less likely to have received involuntarily treatment under the Mental Health Act. This might be due, at least in part, to the fact that the FEP+CR-BPD group did not present with the most acute and severe psychotic symptoms. Alternatively, lower rates of involuntary treatment might have arisen from beliefs among clinicians about the veracity or treatability of BPD symptoms[15] or beliefs about the value of inpatient care for

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people with BPD [38]. These issues require further exploration. The third FEP treatment strategy addresses the use of low-dose antipsychotic medications. Compared with the FEP alone group, the FEP+CR-BPD group were significantly less likely to be prescribed any antipsychotic medication at both 1 and 4 weeks following entry to the specialist early psychosis service. This is a striking finding, given that these patients had been assessed as presenting with psychosis (i.e., they had been accepted into the EPPIC treatment program), and treatment guidelines specify that antipsychotic medications should be provided. Therefore, it seems that the presence of co-occurring BPD influenced clinicians to deviate from recommended treatment practices with respect to prescribing. There was also a suggestion that when FEP patients with BPD were prescribed antipsychotic medication, they received higher than average doses, although this finding did not reach statistical significance. It is also noteworthy that there were many aspects of care that did not differ between the two groups and that psychosocial interventions were offered to both groups. The findings suggest clinician-assessed BPD in FEP prompts clinicians to give more weight in prescribing decisions to clinical judgement than to published clinical guidelines. Further research is required to determine which approach is best, and how to ensure that early psychosis in young people is not being either under- or over-treated.'

This exploratory study has several limitations and presents questions for further research. The study did not examine the nature or severity of the psychotic symptoms experienced by the two FEP subgroups and this might have contributed to the observed treatment differences. Although recent research has demonstrated that psychotic symptoms in BPD do not differ phenomenologically from those in schizophrenia spectrum disorders[4, 19, 21], differences in severity and duration of symptoms between the study groups might be expected to affect both access to services and treatment received. This study encompassed only the first three months of care following presentation to an early psychosis service. A more comprehensive understanding of the influence of BPD on treatment for FEP would be gained by examining clinical care over the entire 18 -24 month treatment period in EPPIC. This would also allow clarification of diagnosis and determination of whether those with BPD and psychotic symptoms warrant a separate psychotic disorder diagnosis. As described earlier, the early intervention approach used at EPPIC admits young people who have had positive psychotic symptoms, on a daily basis for at least one week, in order to avoid prolonging the duration of untreated psychosis. This imperative means that there is considerable diagnostic uncertainty around young people admitted with early psychosis and that, for some, a diagnosis of BPD with psychotic symptoms will emerge over time. Further studies that follow people longitudinally are required to assist clinicians and services to choose the best treatments for young people presenting with FEP and comorbidities. Variations to established guidelines for treatment of FEP may be based on the

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presence of a range of comorbidities such as mood, anxiety, substance use, and personality disorders.

Two significant limitations in the current study are the reliance on clinician judgement and a BPD screening instrument for BPD diagnoses, and the use of retrospective file audit methodology. Semi-structured diagnostic assessment for BPD is the gold standard for research diagnosis and would have allowed for assessment of the influence of subthreshold levels of BPD pathology on the study outcomes. There was only fair to good agreement between the clinician-rated BPD diagnoses and those derived from the SCID II interview and there might have been a bias against those born overseas accessing the SCID II interview. Little is known about the influence of ethnicity on BPD diagnosis and treatment and this is an area ripe for further investigation. Although clinician perception of the presence or absence of BPD is most likely to influence treatment received, future studies that incorporate both clinician judgement and semi-structured diagnostic assessments (incorporating measures of symptom severity) and test the reliability of the recording of treatments received, would enhance understanding of this complex comorbidity. A final limitation affecting interpretation of the results is that no adjustments were made for multiple comparisons due to the exploratory nature of the study. However, as the first study to examine comorbid BPD in FEP, it highlights a patient group that clinicians have been, and will continue to treat, and the need for guidance around optimal treatment for these complex patients.

In conclusion, co-occurring BPD is present in approximately one quarter of FEP patients accepted into care in a specialised early psychosis service. This represents an important subgroup of patients with unique clinical challenges, additional comorbidities and high risk. The FEP+CR-BPD group received poorer access to care for FEP and wide variation in prescribing practices, suggesting challenges for clinicians in decision-making or access to knowledge about BPD, and/or suggesting challenges inherent to BPD, such as interpersonal difficulties and impulsive behaviour. Further research is required for this complex patient group in order to establish appropriate treatment guidelines.

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Table 1:

Demographic comparison of the groups with and without a clinician-rated diagnosis of BPD

		OCM Diagnosis		Test statistics			
		BPD	no BPD	Test	value	df	*p* value
		(*n* = 71)	(*n* = 24)				
Gender %Male	*% (n)*	50.0 (12)	62.0 (44)	χ^2	1.06	1	.303
Age	*M (SD)*	18.9 (3.1)	20.4 (2.7)	*t*	-2.14	93	.035
Country of birth % Australia	*% (n)*	95.8 (23)	81.7 (58)	χ^2	2.86	1	.091
Completed education [1]							
Partial secondary	*% (n)*	87.5 (21)	57.1 (40)	χ^2	8.31	1	.004
Completed secondary	*% (n)*	8.3 (2)	8.6 (6)				
Trade or technical training	*% (n)*	0.0 (0)	10.0 (7)				
Tertiary diploma/degree	*% (n)*	0.0 (0)	4.3 (3)				
Tertiary education incomplete	*% (n)*	4.2 (1)	20.0 (14)				
Employment							
Emmployed full- or part-time	*% (n)*	12.5 (3)	29.6 (21)	χ^2	2.84	3	.418
Unemployed	*% (n)*	54.2 (13)	42.3 (30)				
Student	*% (n)*	29.2 (7)	25.4 (18)				
Other	*% (n)*	4.2 (1)	2.8 (2)				
Type of accommodation							
Rental room/flat/house	*% (n)*	12.5 (3)	16.9 (12)	χ^2	3.48	2	.176
House/flat with family	*% (n)*	75.0 (18)	80.3 (57)				
Other	*% (n)*	12.5 (3)	2.8 (2)				
Living with? [2]							
Alone	*% (n)*	16.7 (4)	7.0 (5)	Fishers			.224
Spouse/de facto	*% (n)*	0.0 (0)	7.0 (5)	Fishers			.325
Parents	*% (n)*	70.8 (17)	76.1 (54)	Fishers			.598
Other relatives	*% (n)*	0.0 (0)	2.8 (2)	Fishers			1.000
Friend	*% (n)*	4.2 (1)	4.2 (3)	Fishers			1.000
Institution/boarding	*% (n)*	0.0 (0)	2.8 (2)	Fishers			1.000
Other	*% (n)*	8.3 (2)	0.0 (0)	Fishers			.062
Episode of care							
Two or more	*% (n)*	25.0 (6)	14.1 (10)	Fishers			.223

[1] Chi-square analysis was based on collapsed categories - partial and completed secondary collapsed into 'secondary' category and remaining categories were merged to become 'post-secondary training'

[2] Multiple response variable

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Table 2: Medications prescribed to the two groups at weeks 1, 4 and 12 of treatment

		OCM Diagnosis		Test statistics			
		BPD	no BPD	Test	value	df	*p* value
		(*n* = 16)	(*n* = 57)				
Week 1							
Antipsychotic medications %Yes	*% (n)*	43.8 (7)	87.5 (49)	Fishers			.001
Daily CPZ equivalent dosage [1, 2]	*M (SD)*	258.3 (193.1)	155.3 (74.9)	*t*	-0.53	6.3	.613
Minor tranquilisers %Yes	*% (n)*	25.0 (4)	28.1 (16)	Fishers			.808
Diazepam equivalent dosage [1]	*M (SD)*	20.8 (13.3)	21.3 (14.7)	*t*	0.16	18	.871
Mood stabilisers %Yes	*% (n)*	0.0 (0)	21.1 (12)	Fishers			.057
Antidepressants %Yes	*% (n)*	43.8 (7)	14.0 (8)	Fishers			.016
PRN %Yes	*% (n)*	25.0 (4)	43.9 (25)	χ^2			.173
Week 4							
Antipsychotic medications %Yes	*% (n)*	40.0 (6)	86.3 (44)	Fishers			.001
Daily CPZ equivalent dosage [1]	*M (SD)*	399.2 (305.6)	241.3 (135.1	*t*	1.35	48	.183
Minor tranquilisers %Yes	*% (n)*	20.0 (3)	10.5 (6)	Fishers			.383
Diazepam equivalent dosage [1]	*M (SD)*	6.3 (6.3)	13.3 (8.2)	*t*	-1.65	8	.137
Mood stabilisers %Yes	*% (n)*	0.0 (0)	21.1 (12)	Fishers			.060
Antidepressants %Yes	*% (n)*	33.3 (5)	17.5 (10)	Fishers			.281
PRN %Yes	*% (n)*	20.0 (3)	22.8 (13)	Fishers			1.000
Three months							
Antipsychotic medications %Yes	*% (n)*	57.1 (8)	85.4 (41)	Fishers			.056
Daily CPZ equivalent dosage [1]	*M (SD)*	241.6 (269.3)	249.4 (114.3	*t*	-0.85	47	.398
Minor tranquilisers %Yes	*% (n)*	7.1 (1)	11.1 (6)	Fishers			1.000
Diazepam equivalent dosage [1]	*M (SD)*	2.5 (3.5)	11.3 (8.8)	*t*	-1.08	8	.312
Mood stabilisers %Yes	*% (n)*	0.0 (0)	24.1 (13)	Fishers			.056
Antidepressants %Yes	*% (n)*	28.6 (4)	31.5 (17)	Fishers			1.000
PRN %Yes	*% (n)*	21.4 (3)	13.0 (7)	Fishers			.418

[1]Statistical analysis based on log10+1 transformed data due to significant skewness
[2]Degrees of freedom were adjusted to account for violation to homogeneity of variance

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Title: Does co-occurring borderline personality disorder influence acute phase treatment for first-episode psychosis?

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