



# Psychopathology and psychosocial functioning among young people with first-episode psychosis and/or first-presentation borderline personality disorder

Andrew M. Chanen<sup>a,b,\*</sup>, Richard Kerslake<sup>c</sup>, Felix-Antoine Berubé<sup>d</sup>, Katie Nicol<sup>a,b</sup>,  
Martina Jovev<sup>a,b</sup>, Hok Pan Yuen<sup>a,b</sup>, Jennifer K. Betts<sup>a,b</sup>, Emma McDougall<sup>a,b</sup>, Ai-Lan Nguyen<sup>e</sup>,  
Marialuisa Cavelti<sup>f</sup>, Michael Kaess<sup>f,g</sup>

<sup>a</sup> Orygen, Melbourne, Australia

<sup>b</sup> Centre for Youth Mental Health, The University of Melbourne, Parkville, VIC, Australia

<sup>c</sup> Sussex Partnership NHS Foundation Trust, Sussex, United Kingdom

<sup>d</sup> Institut Universitaire en Santé Mentale de Montréal, Université de Montréal, Montreal, Canada

<sup>e</sup> Department of Medicine, The University of Melbourne, Parkville, VIC, Australia

<sup>f</sup> University Hospital of Child and Adolescent Psychiatry and Psychotherapy, University of Bern, Bern, Switzerland

<sup>g</sup> Department of Child and Adolescent Psychiatry, Center for Psychosocial Medicine, University Hospital Heidelberg, Heidelberg, Germany

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## ABSTRACT

**Background:** One in five young people with first-episode psychosis (FEP) also presents with borderline personality disorder (BPD) features. Among people diagnosed with BPD, auditory verbal hallucinations occur in 29–50 % and delusions in 10–100 %. Co-occurrence of psychotic symptoms and BPD is associated with greater clinical severity and greater difficulty accessing evidence based FEP care. This study aimed to investigate psychotic symptoms and psychosocial functioning among young people presenting to an early intervention mental health service.

**Method:** According to the presence or absence of either FEP or BPD, 141 participants, aged 15–25 years, were assigned to one of four groups: FEP, BPD, combined FEP + BPD, or clinical comparison (CC) participants with neither FEP nor BPD. Participants completed semi-structured diagnostic interviews and interviewer and self-report measures of psychopathology and psychosocial functioning.

**Results:** The FEP + BPD group had significantly more severe psychopathology and poorer psychosocial functioning than the FEP group on every measure, apart from intensity of hallucinations. Comparing the FEP or BPD groups, the BPD group had greater psychopathology, apart from intensity of psychotic symptoms, which was significantly greater in the FEP group. These two groups did not significantly differ in their overall psychosocial functioning. Compared with CC young people, both the FEP + BPD and BPD groups differed significantly on every measure, with medium to large effect sizes.

**Conclusions:** Young people with co-occurring FEP and BPD experience more severe difficulties than young people with either diagnosis alone. This combination of psychosis and severe personality pathology has been longitudinally associated with poorer outcomes among adults and requires specific clinical attention.

## 1. Introduction

The transition from childhood to adulthood is the key development

period for the onset of the major mental disorders, including psychotic and personality disorders (PD) (Chanen and Thompson, 2019; McGorry and Mei, 2021; Newton-Howes et al., 2015). While early intervention for

\* Corresponding author at: Orygen, 35 Poplar Rd, Parkville 3052, Victoria, Australia.

E-mail addresses: [andrew.chanen@orygen.org.au](mailto:andrew.chanen@orygen.org.au) (A.M. Chanen), [richard.kerslake@nhs.net](mailto:richard.kerslake@nhs.net) (R. Kerslake), [felix-antoine.berube@umontreal.ca](mailto:felix-antoine.berube@umontreal.ca) (F.-A. Berubé), [katie.nicol@orygen.org.au](mailto:katie.nicol@orygen.org.au) (K. Nicol), [martina.jovev@orygen.org.au](mailto:martina.jovev@orygen.org.au) (M. Jovev), [hokpan.yuen@orygen.org.au](mailto:hokpan.yuen@orygen.org.au) (H.P. Yuen), [jennifer.betts@orygen.org.au](mailto:jennifer.betts@orygen.org.au) (J.K. Betts), [emmamcdoug@gmail.com](mailto:emmamcdoug@gmail.com) (E. McDougall), [ai-lan.nguyen@unimelb.edu.au](mailto:ai-lan.nguyen@unimelb.edu.au) (A.-L. Nguyen), [marialuisa.cavelti@upd.unibe.ch](mailto:marialuisa.cavelti@upd.unibe.ch) (M. Cavelti), [michael.kaess@upd.ch](mailto:michael.kaess@upd.ch) (M. Kaess).

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psychosis has a long and established history, three decades of evidence now supports the reliability and validity of PD from puberty onwards and the case for early intervention for PD (Chanen et al., 2022b, 2020, 2017; Newton-Howes et al., 2015). Most research has focused upon borderline PD (BPD), which has been proposed to capture the core of personality pathology, representing features that are shared across all expressions of personality disorder (Sharp, 2022).

Approximately one in five young people with first-episode psychosis (FEP) also present with BPD features (Francey et al., 2018; Schandrin et al., 2022). Compared with those with FEP alone, young people with FEP and BPD features were more likely to present with more severe hallucinations, to have alcohol abuse, to have more relationship difficulties at presentation, to have depression and to engage in self-harm (Schandrin et al., 2022). Young people with co-occurring BPD and FEP have been found to experience greater difficulty accessing standard care for FEP and to have received relatively different treatment, including pharmacotherapy, compared with those FEP patients without BPD (Francey et al., 2018). Studies of adult patient groups have found that BPD has a significant adverse longitudinal effect upon the course and outcome of schizophrenia (Bahorik and Eack, 2010). Moreover, epidemiological data suggest that the normative decline in borderline traits throughout adulthood might account for the reduced prevalence of positive psychotic symptoms in both clinical and non-clinical populations across the same period (Peters et al., 2022).

Auditory verbal hallucinations (AVH) are reported to occur in 29–50 % of people with BPD (Cavelti et al., 2021). Those with both BPD and schizophrenia report an even greater prevalence of AVH (90 %), compared with those with either disorder alone and report higher distress related to their psychotic experiences than those with schizophrenia without BPD (Kingdon et al., 2010). The presence of psychotic disorder or AVH in people with BPD is associated with poorer outcomes, such as suicide attempts and acute psychiatric readmissions, and a higher number of BPD criteria (Niemantsverdriet et al., 2017; Slotema et al., 2018a, 2018b). Historical contention has suggested that psychotic symptoms, especially AVH, in BPD are somehow different from those in schizophrenia spectrum disorder, are hypothesized to be dissociative in origin, and to be the result of childhood trauma (Beatson, 2019). However, more recently, dissociation has attracted broader, trans-diagnostic interest in the field of psychosis, with studies examining dissociation in schizophrenia spectrum and other disorders, along with the role of dissociation in psychotic symptoms. Meta-analytic data from these studies indicates that dissociative phenomena are related to hallucinations and other positive psychotic symptoms across diagnoses (Longden et al., 2020).

Similar to AVH in schizophrenia, AVH in BPD are commonly longstanding, rather than transient and stress-related (as suggested in DSM-IV, DSM-5, and ICD-11), and commence at a young age (16 years) (Slotema et al., 2012; Tschoeke et al., 2014). Several studies have specifically compared AVH in BPD with AVH in patients with schizophrenia (Merrett et al., 2016). These have reported no significant group differences in the frequency, duration, location, loudness, or beliefs of origin of AVH (Kingdon et al., 2010; Slotema et al., 2018b; Slotema et al., 2012; Tschoeke et al., 2014). However, patients with BPD reported equal (Slotema et al., 2012), or significantly greater (Kingdon et al., 2010), distress in response to AVH, greater amount of unpleasant AVH content, and greater degree of AVH abusive or threatening content (Kingdon et al., 2010). In addition, the BPD group more often reported negative beliefs about the voices in terms of supremacy of voices (Cavelti et al., 2019a), and attempted to ignore, avoid or suppress AVH due to their distressing nature (Hepworth et al., 2013). BPD patients are significantly more likely to report being controlled by their AVH (Tschoeke et al., 2014), but their lives are less disrupted by AVH, compared with patients with schizophrenia (Slotema et al., 2012). Among young people (aged 15–25 years) with a diagnosis of BPD, those who experienced AVH reported more severe self-harm, paranoid ideation, dissociation, anxiety and stress than those with BPD but no AVH (Cavelti et al., 2019b), and a

study of 15–18 year-olds demonstrated a significant association between psychotic symptoms and BPD severity (Thompson et al., 2019).

Delusional thinking has also been reported among adults with BPD but not negative or disorganized symptoms (Niemantsverdriet et al., 2017). Delusions are estimated to occur in 10–100 % of people diagnosed with BPD (Kingdon et al., 2010; Links et al., 1989; Merrett et al., 2022; Pearse et al., 2014; Yee et al., 2005). Although adults with BPD and adults with schizophrenia reported similar levels of suspiciousness, delusions were reported to be less severe among adults with BPD (Tschoeke et al., 2014). This is supported by one study comparing 15–25 year-olds with either schizophrenia spectrum disorder with AVH or BPD with AVH, which found that patients with BPD and AVH reported higher levels of paranoid ideation but less severe delusions (Cavelti et al., 2019b).

This study aimed to investigate self-report and interviewer-elicited psychotic symptoms, as well as psychosocial functioning, among youth with BPD, FEP, the combined disorders (FEP + BPD), and clinical comparison (CC) participants with neither BPD nor FEP. We hypothesized that the FEP + BPD group would show the greatest psychotic symptom frequency, intensity, and distress, the highest extent of dissociative symptoms, and the lowest psychosocial functioning, compared with the FEP, BPD, or CC groups. We also hypothesized that the FEP + BPD, FEP, and BPD groups would each present with greater frequency, intensity and distress related to psychotic symptoms, and lower psychosocial functioning, compared with CC.

## 2. Materials and methods

### 2.1. Study procedure

The study was approved by the Melbourne Health Human Research and Ethics Committee (2004.666). All participants were recruited from Orygen, the State Government funded specialist outpatient youth mental health service providing early intervention services for north-western and western metropolitan Melbourne, Australia. All participants were recruited within the first three months of care at Orygen in order to minimize the confounding effects of pharmacological or psychological treatment, or illness duration.

Written informed consent was obtained from each participant, and from a parent or guardian for young people under the age of 18. Participants completed a semi-structured clinical interview with a trained research assistant, and self-report questionnaires. All study participants were reimbursed for their time after completion of the study assessment.

### 2.2. Recruitment

The study included two recruitment periods, from 2005 to 2007, and 2012–2013, for a total of 36 months. At entry to the service, new Orygen clients completed a routine initial assessment with a mental health clinician. Potential study participants were identified by researchers in collaboration with the assessing clinicians, within the first 3 months of service entry. In total, 549 young people who were referred to Orygen for clinical assessment were considered for participation. Of these, 287 did not answer telephone calls from researchers and so were not invited to participate (not contactable), 86 declined to participate, 18 were ineligible, 158 provided written informed consent, and 141 completed the study. Seventeen young people who provided informed consent were not contactable thereafter and did not complete the research interview.

### 2.3. Study sample

The final convenience sample comprised 141 participants. They were assigned to one of four groups, according to the presence or absence of either FEP or BPD. FEP was defined as a first episode of a DSM-IV brief psychotic disorder (298.8), delusional disorder (297.1), schizoaffective disorder (295.70), schizophrenia (295.10, 295.20, 295.30, 295.60,

295.90), schizophreniform disorder (295.40), and psychotic disorder NOS (298.9). Demographic and diagnostic characteristics of the four study groups can be found in Table 1. The FEP + BPD group comprised participants diagnosed with FEP and co-occurring BPD ( $\geq 5$  DSM-IV BPD criteria). The FEP group comprised participants with FEP but no BPD (defined as  $\leq 1$  DSM-IV BPD criterion). The BPD group comprised participants without a diagnosis of FEP but with  $\geq 5$  DSM-IV BPD criteria. The Clinical Comparison (CC) group comprised participants with a mood disorder but without FEP or BPD ( $\leq 1$  DSM-IV BPD criterion).

The four study groups differed in terms of their sex distribution ( $p < 0.001$ ). The FEP group was predominantly male, whereas female participants were more common among the other three groups. There was no significant difference between the four groups in terms of age ( $p = 0.25$ ).

## 2.4. Assessment tools

### 2.4.1. Semi-structured interview assessment

The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P) was used to assess for mental state disorders, including psychotic, mood, anxiety, eating and substance-related disorders (First et al., 1997b). The Schizotypal, BPD and Antisocial modules of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) were used to assess the selected DSM-IV personality disorders (First et al., 1997a).

The Brief Psychiatric Rating Scale (BPRS) Expanded version (4.0) was used to investigate the intensity of major psychiatric symptoms including psychotic symptoms (Ventura et al., 1993). Each of the 24-items is rated on a 7-point scale, which ranges from 1 (not present) to 7 (extremely severe). In addition to the total score and the psychotic

**Table 1**  
Demographic and diagnostic characteristics of the study sample.

	FEP + BPD (n = 17)	FEP (n = 23)	BPD (n = 34)	CC (n = 67)	Total sample (N = 141)
Mean age (SD)	18.4 (1.9)	21.2 (2.7)	18.7 (2.7)	19.2 (3.1)	19.3 (2.9)
Number of males (%)	4 (23.5)	16 (69.6)	5 (14.7)	25 (37.3)	50 (35.5)
Completed high school: % <sup>a</sup>	66.7	81.3	93.3	94.3	89.4
Mean number BPD criteria (SD)	5.9 (1.1)	0.3 (0.5)	6.0 (1.0)	0.3 (0.4)	
Diagnoses: n (%)					
Brief psychotic	1 (5.9)	1 (4.3)	0 (0)	0 (0)	
Delusional	0 (0)	1 (4.3)	0 (0)	0 (0)	
Schizoaffective	2 (11.8)	1 (4.3)	0 (0)	0 (0)	
Schizophrenia	4 (23.5)	4 (17.4)	0 (0)	0 (0)	
Schizophreniform	6 (35.3)	13 (56.5)	0 (0)	0 (0)	
Psychotic NOS	4 (23.5)	3 (13.0)	0 (0)	0 (0)	
Any mood disorder	9 (52.9)	2 (8.7)	21 (61.8)	31 (46.3)	
Depressive disorder	8 (47.1)	2 (8.7)	11 (32.4)	18 (26.9)	
Bipolar II disorder	1 (5.9)	0 (0)	0 (0)	8 (11.9)	
Any anxiety disorder	12 (70.6)	7 (30.4)	25 (73.5)	28 (41.8)	
Any eating disorder	0 (0)	0 (0)	6 (17.6)	13 (19.4)	
Substance-related	9 (52.9)	7 (30.4)	12 (35.3)	10 (14.9)	

FEP = first-episode psychosis, BPD = borderline personality disorder, CC = clinical comparison, NOS = not otherwise specified.

<sup>a</sup> High school completion of participants aged 19 or older. Note education data was not collected from participants in the second wave of recruitment so these have been excluded from % calculations.

subscale, hallucinations were coded from item 10 (Hallucinations) and delusions were coded from the sum of items 9 (Suspiciousness) and 11 (Unusual thought content).

Psychosocial functioning was assessed using the Social and Occupational Functioning Assessment Scale (SOFAS) (Rybarczyk, 2011). The SOFAS is scored on a scale of 0–100 as a 10-point scale from 1 to 10 as “very low functioning” to 91–100 as “Superior functioning”.

The semi-structured interview was conducted by one of two qualified clinical psychologists with experience in the assessment and treatment of FEP and BPD.

### 2.4.2. Self-report questionnaire assessment

The Community Assessment of Psychic Experiences (CAPE) is a 42-item self-report questionnaire that was developed to detect the prevalence of ‘psychotic-like experiences’ in the general population, even in the absence of psychiatric diagnoses. The CAPE measures three dimensions of psychosis: positive, negative and depressive symptoms. The positive items include questions on delusions as well as auditory and visual hallucinations. Each item explores both the frequency of the experience and the degree of related distress (measured on a 4-point scale each). The CAPE has been shown to have good reliability and adequate validity (Mark and Touloupoulou, 2016).

The Dissociative Experiences Scale II (DES-II) (Allen and Smith, 1993) is a 28-item self-report measure. Each item has an 11-point scale from 0 to 100 %, representing “never” up to “continuously”. Participants were asked to indicate the extent to which they experience the dissociative symptoms. The overall score is the average across all 28 items. The DES-II showed good test-retest and internal reliability (Spitzer et al., 1998).

## 2.5. Statistical analyses

Statistical analysis was conducted using SPLUS (MathSoft, SPLUS 4.0, MathSoft Inc., Cambridge, MA, 1997). Descriptive sample characteristics were compared between groups using Fisher's exact test for categorical variables and one-way analysis of variance (ANOVA) for dimensional variables. Scores of frequency, intensity and distress of psychotic symptoms were compared between groups using fANOVA. The application of one-way ANOVA requires the groups to have the same variance. In order to allow for the possibility that this requirement was not adequately met in the various scores, a square-root transformation was applied to the scores to stabilize the variance and then one-way ANOVA was carried out on the transformed scores. The results were very similar to those of the untransformed scores and therefore, are not presented. In order to adjust for a potential effect of the sex difference across study groups, analyses were repeated, adjusting for sex, but the pattern of results was similar and, thus, are not presented. Post-hoc pairwise comparisons of the four groups were performed using Fisher's LSD test. No correction for multiple testing was carried out because correction is only required when conducting joint hypothesis testing (Rothman et al., 2008).

## 3. Results

Table 1 shows that the most common psychotic diagnosis within the FEP and FEP + BPD groups was schizophreniform disorder. These two groups did not differ in terms of the diagnostic spectrum of psychotic disorders ( $p = 0.70$ ). Descriptive results and group comparisons for the intensity, frequency and distress of psychotic symptoms, extent of dissociation symptoms, and level of psychosocial functioning are presented in Tables 2 and 3.

### 3.1. Psychotic symptoms

Compared with the FEP group, the FEP + BPD participants presented with higher intensity, frequency and distress associated with psychotic

**Table 2**  
Summary statistics for BPRS, CAPE-42, DES-II, and SOFAS.

BPRS	FEP + BPD (n = 15)		FEP (n = 21)		BPD (n = 34)		CC (n = 65)	
	M	SD	M	SD	M	SD	M	SD
Hallucinations	3.6	1.4	2.9	2.1	2.3	1.5	1.3	1.0
Delusions	6.7	2.3	4.7	2.7	3.7	2.2	2.7	1.7
Psychotic subscale	11.8	4.0	9.3	4.7	7.2	3.4	5.2	2.6
Total score	56.7	13.2	43.3	10.8	45.9	9.6	37.1	9.6

  

CAPE-42	FEP + BPD (n = 17)		FEP (n = 23)		BPD (n = 33)		CC (n = 67)	
	M	SD	M	SD	M	SD	M	SD
Frequency positive symptoms	43.2	10.5	32.4	8.1	34.8	8.7	27.7	5.9
Frequency negative symptoms	34.6	6.0	27.8	7.6	33.1	7.4	26.0	7.2
Frequency depressive symptoms	25.8	3.6	17.0	5.0	22.7	4.4	17.0	5.1
Frequency total	103.5	13.8	77.2	19.0	90.6	16.9	70.6	15.2
Distress total	34.3	16.2	20.0	13.0	22.7	13.7	12.1	9.6
Distress positive symptoms	27.6	8.7	21.0	11.3	25.4	10.3	18.2	10.1
Distress negative symptoms	24.1	6.4	14.7	7.7	22.6	6.4	15.3	7.7
Distress depressive symptoms	86.0	24.2	55.8	29.1	70.7	25.7	45.6	23.6
Total DES-II score	36.0	17.6	16.8	16.5	27.8	17.3	12.2	11.0

  

SOFAS	FEP + BPD (n = 17)		FEP (n = 23)		BPD (n = 33)		CC (n = 64)	
	M	SD	M	SD	M	SD	M	SD
Total score	47.9	12.7	58.7	12.5	54.2	8.8	68.5	10.5

FEP = first-episode psychosis, BPD = borderline personality disorder, BPRS = Brief Psychiatric Rating Scale, CC = clinical comparison, CAPE = Community Assessment of Psychic Experiences, DES = Dissociative Experiences Scale, SOFAS = Social and Occupational Functioning Scale.  
Note: Sample sizes vary due to missing values.

symptoms, except for intensity of hallucinations. Compared with the BPD group, the FEP + BPD group also endorsed a higher intensity and frequency of psychotic symptoms, other than for the frequency of negative symptoms. Total distress was also higher in the FEP + BPD group, compared with the BPD group, with this likely driven by greater distress associated with positive symptoms. Compared with the CC group, the FEP + BPD group reported greater intensity, frequency and distress of psychotic symptoms.

Comparisons between the FEP and the BPD groups revealed marginal group differences (medium effect sizes). With regard to intensity of symptoms, the FEP group reported a higher level on the psychotic subscale, but not with regard to delusions, hallucinations or overall intensity. The BPD group reported a greater overall frequency of psychotic symptoms, mainly driven by higher frequencies of negative and depressive symptoms. The BPD group also reported experiencing more distress overall, and specifically distress associated with depressive symptoms.

The CC and BPD groups differed on all psychotic symptom measures, with the BPD group reporting greater intensity, frequency and distress. The FEP group only differed from the CC group with respect to a higher intensity of symptoms, a greater frequency of positive symptoms and

distress associated with these positive symptoms. CC and FEP did not differ with regard to other symptom-associated distress.

### 3.2. Dissociative symptoms

FEP + BPD participants experienced the most dissociative symptoms, which differed significantly from the FEP and CC groups, but not from the BPD group. Sign in.

### 3.3. Psychosocial functioning

All three index groups had poorer psychosocial functioning, compared with the CC group, and the combined FEP + BPD group had the poorest psychosocial functioning, which differed significantly from the FEP but not from the BPD group.

## 4. Discussion

This study examined psychotic symptoms, dissociation, and level of psychosocial functioning among young people with FEP, or BPD, or FEP + BPD, compared with young people with other mental disorders (CC). Three main findings arise from this study.

First, the most striking finding was that the FEP + BPD group reported significantly more severe psychopathology and poorer psychosocial functioning than the FEP group on every measure, apart from intensity of hallucinations. This finding is consistent with a previous study demonstrating that the combination of FEP and BPD features among young people is associated with more severe psychopathology, distress, relationship difficulties and self-harming behaviors than FEP alone (Schandrin et al., 2022). Concerningly, young people with co-occurring FEP and BPD have been found to experience greater difficulty accessing standard care for FEP (Francey et al., 2018), receiving relatively different FEP treatment, compared with those FEP patients without BPD, including different pharmacotherapy. In clinical practice, the limited evidence about FEP and BPD hinders appropriate clinical decision-making. One potential outcome is that psychotic symptoms disclosed by individuals with BPD might not be taken seriously and/or might be under-treated, perpetuating stigma, prolonging the period of untreated psychosis and worsening outcome (Cavelti et al., 2021; Francey et al., 2018).

Second, when comparing young people with FEP or BPD, there were significant differences indicating greater psychopathology (including dissociation) in the BPD group, apart from intensity of psychotic symptoms, which was significantly greater in the FEP group. Importantly, the two groups did not significantly differ in their overall psychosocial functioning. These findings are also largely consistent with the growing body of evidence demonstrating the prevalence and burden of psychotic and dissociative symptoms among individuals with BPD (Adams and Sanders, 2011; Cavelti et al., 2021; Schroeder et al., 2013; Slotema et al., 2018a, 2018b; Yee et al., 2005). However, some differences in the pattern of psychotic symptoms in the current study warrant further attention. While individuals with FEP reported more intense psychotic experiences (higher score on the BPRS psychotic subscale), those with BPD reported higher frequency of psychotic symptoms (higher score on CAPE-42 total frequency), and greater associated distress (higher score on CAPE-42 total distress). Among adults with either schizophrenia or BPD, auditory hallucinations have been reported to be experienced with similar intensity, and the BPD group reported greater negative content and distress associated with their hallucinations (Kingdon et al., 2010). Unexpectedly, in the current study, participants in the BPD group experienced greater frequency of negative symptoms than participants with FEP. However, the inverse pattern was found in a study of adults with schizophrenia (Tschoeke et al., 2014). The finding of more frequent psychotic symptoms in BPD in comparison with psychotic disorder is consistent with a previous study investigating the intensity of psychotic symptoms with an experience sampling

**Table 3**  
Group differences in psychotic and dissociative symptoms as well as psychosocial functioning.

	FEP + BPD vs. FEP		FEP + BPD vs. BPD		FEP vs. BPD		FEP + BPD vs. CC		FEP vs. CC		BPD vs. CC	
	p-Value	ES	p-Value	ES	p-Value	ES	p-Value	ES	p-Value	ES	p-Value	ES
<b>BPRS</b>												
Hallucinations	0.122	0.53	<b>0.003</b>	<b>0.93</b>	0.153	0.40	<b>&lt;0.001</b>	<b>1.62</b>	<b>&lt;0.001</b>	<b>1.10</b>	<b>0.001</b>	<b>0.70</b>
Delusions	<b>0.005</b>	<b>0.97</b>	<b>&lt;0.001</b>	<b>1.46</b>	0.075	0.50	<b>&lt;0.001</b>	<b>1.94</b>	<b>&lt;0.001</b>	<b>0.97</b>	<b>0.028</b>	<b>0.47</b>
Psychotic subscale	<b>0.032</b>	<b>0.73</b>	<b>&lt;0.001</b>	<b>1.06</b>	<b>0.024</b>	<b>0.63</b>	<b>&lt;0.001</b>	<b>1.95</b>	<b>&lt;0.001</b>	<b>1.22</b>	<b>0.006</b>	<b>0.59</b>
Total score	<b>&lt;0.001</b>	<b>1.31</b>	<b>0.001</b>	<b>1.06</b>	0.377	0.25	<b>&lt;0.001</b>	<b>1.92</b>	<b>0.016</b>	<b>0.61</b>	<b>&lt;0.001</b>	<b>0.86</b>
<b>CAPE-42</b>												
Frequency positive	<b>&lt;0.001</b>	<b>1.41</b>	<b>&lt;0.001</b>	<b>1.09</b>	0.247	0.32	<b>&lt;0.001</b>	<b>2.03</b>	<b>0.011</b>	<b>0.63</b>	<b>&lt;0.001</b>	<b>0.94</b>
Frequency negative	<b>0.003</b>	<b>0.96</b>	0.470	0.22	<b>0.007</b>	<b>0.74</b>	<b>&lt;0.001</b>	<b>1.21</b>	0.295	0.25	<b>&lt;0.001</b>	<b>0.99</b>
Frequency depressive	<b>&lt;0.001</b>	<b>1.84</b>	<b>0.032</b>	<b>0.65</b>	<b>&lt;0.001</b>	<b>1.19</b>	<b>&lt;0.001</b>	<b>1.82</b>	0.939	0.02	<b>&lt;0.001</b>	<b>1.17</b>
Frequency total	<b>&lt;0.001</b>	<b>1.64</b>	<b>0.008</b>	<b>0.80</b>	<b>0.003</b>	<b>0.83</b>	<b>&lt;0.001</b>	<b>2.04</b>	0.094	0.41	<b>&lt;0.001</b>	<b>1.24</b>
Distress positive	<b>&lt;0.001</b>	<b>1.18</b>	<b>0.002</b>	<b>0.96</b>	0.413	0.22	<b>&lt;0.001</b>	<b>1.82</b>	<b>0.009</b>	<b>0.64</b>	<b>&lt;0.001</b>	<b>0.87</b>
Distress negative	<b>0.045</b>	<b>0.65</b>	0.455	0.22	0.122	0.42	<b>0.001</b>	<b>0.93</b>	0.248	0.28	<b>0.001</b>	<b>0.70</b>
Distress depressive	<b>&lt;0.001</b>	<b>1.28</b>	0.496	0.20	<b>&lt;0.001</b>	<b>1.08</b>	<b>&lt;0.001</b>	<b>1.20</b>	0.732	0.08	<b>&lt;0.001</b>	<b>0.99</b>
Distress total	<b>&lt;0.001</b>	<b>1.20</b>	<b>0.043</b>	<b>0.61</b>	<b>0.031</b>	<b>0.59</b>	<b>&lt;0.001</b>	<b>1.61</b>	0.095	0.41	<b>&lt;0.001</b>	<b>1.00</b>
DES-II Total score	<b>&lt;0.001</b>	<b>1.32</b>	0.062	0.56	<b>0.006</b>	<b>0.76</b>	<b>&lt;0.001</b>	<b>1.64</b>	0.201	0.31	<b>&lt;0.001</b>	<b>1.07</b>
SOFAS Total score	<b>0.002</b>	<b>1.00</b>	0.052	0.58	0.13	0.41	<b>&lt;0.001</b>	<b>1.91</b>	<b>&lt;0.001</b>	<b>0.91</b>	<b>&lt;0.001</b>	<b>1.32</b>

Bold text indicates significant effect at  $\alpha < 0.05$ .

method (Glaser et al., 2010). It might be hypothesized that while BPD is associated with frequent psychotic experiences, these experiences are less likely to reach the intensity commonly found in psychotic disorders. Of note, methodologically, the intensity of psychotic symptoms was assessed with a structured interview (rater-based) while frequency and distress of these symptoms was assessed via self-report questionnaire (patient-based). Thus, it could also be hypothesized that the self-report ratings were influenced by factors such as level of insight, motivation to seek help, or sex differences in the report of the experienced burden. Future research will need to investigate this by using both self-report and rater-based assessments for all phenomenological aspects of psychotic symptoms.

Third, when comparing FEP + BPD, FEP or BPD with CC young people, both the FEP + BPD and BPD groups differed significantly on every measure, with medium to large effect sizes. The FEP group differed from the CC group largely on intensity of psychotic symptoms and psychosocial functioning. It is also noteworthy that young people with BPD did not significantly differ from the FEP + BPD group in terms of dissociative symptoms or psychosocial functioning. Taken together, these findings add support to the argument that BPD is in and of itself a severe mental disorder. Over a quarter of a century of research supports the importance of early intervention in psychosis to shorten the duration of acute illness, promote recovery and to prevent secondary adverse outcomes (Birchwood et al., 1998; McGorry et al., 2008). Despite clear evidence of current suffering and poor psychosocial outcomes among young people with BPD (Chanen et al., 2022b), attempts to address this are still seen as illegitimate (Allison et al., 2022), often reflecting the inherent, systemic bigotry among mental health professionals toward people with BPD (Chanen, 2021).

#### 4.1. Limitations and strengths

Limitations include that the sample size of the two FEP subgroups was small, limiting statistical power to reliably detect small differences between groups. While groups were comparable in terms of their age and their clinical stage (i.e., help-seeking youth with first-presentation illness, attending an early intervention service), sex distribution was significantly different between groups. However, this reflects well-recognized sex differences among help-seeking young people for FEP (Kirkbride et al., 2017) versus BPD (Chanen et al., 2022a), with a preponderance of males in the former and females in the latter. Moreover, sex as a covariate did not alter the overall pattern of the results from our analyses. The assessment of frequency and distress of psychotic symptoms was based on self-report, while the assessment of symptom

intensity was based on structured interviews. Heightened subjective experiences have previously been reported among young people with BPD with regard to distress (Thompson et al., 2018) and sleep (Jenkins et al., 2022) and among adults with BPD with regard to depression (Stanley and Wilson, 2006). Finally, the CAPE was developed as a self-report questionnaire that measures the prevalence of psychosis-like experiences in the general population and was chosen as a measure that would be applicable to all groups in the study. However, it might not adequately capture psychotic experiences in clinical samples representing the upper end of the spectrum of psychosis severity.

This is the first study to compare the experience of psychotic symptoms among young people with FEP, BPD, FEP and BPD, and young people with other mental state disorders. A strength of this study was the recruitment of young people who were early in the course of their illness presentation, thus minimizing potentially confounding factors such as cumulative illness effects, traumatic life events, pharmacotherapy, or iatrogenic harm. However, while we believe that help-seeking young people attending Orygen are representative of the help-seeking population in Orygen's catchment, some caution is required when generalising the findings to the wider population. The current study also used gold-standard, semi-structured BPD diagnostic measures, overcoming some of the methodological limitations of previous studies that have used screening instruments or clinical impression for BPD diagnosis (e.g., Francey et al., 2018; Merrett et al., 2022; Niemantsverdriet et al., 2017; Schandrin et al., 2022).

#### 4.2. Conclusions

BPD and psychotic disorders are common, important, and sometimes controversial differential diagnoses among individuals presenting with psychotic symptoms (Kaess et al., 2014). Young people with co-occurring FEP and BPD demonstrate an overall more severe clinical picture than young people with either BPD or FEP alone, or young people with other common mental state disorders. This combination of psychosis and severe personality pathology is likely to be a marker of clinical severity (Chanen et al., 2022b; Kaess and Cavelti, 2022), and has been longitudinally associated with poorer outcomes among adults (Bahorik and Eack, 2010; Slotema et al., 2018a). This group requires specific clinical attention to address the combined problems with which they present and should be a focus of further research. Preliminary evidence indicates that a combination of early intervention for BPD with specialist FEP intervention is a safe and acceptable treatment option for this complex patient group (Gleeson et al., 2012). While emerging data suggest that treatment for AVH in BPD might be effective (Slotema et al.,

2018b), randomized controlled trials are lacking (Chanen et al., 2019).

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### CRediT authorship contribution statement

**Andrew M. Chanen:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Conceptualization. **Richard Kerslake:** Writing – review & editing, Writing – original draft, Data curation. **Felix-Antoine Berubé:** Writing – review & editing, Writing – original draft, Data curation. **Katie Nicol:** Writing – review & editing, Writing – original draft. **Martina Jovev:** Writing – review & editing, Writing – original draft, Data curation. **Hok Pan Yuen:** Writing – review & editing, Writing – original draft, Formal analysis. **Jennifer K. Betts:** Writing – review & editing, Writing – original draft, Data curation. **Emma McDougall:** Writing – review & editing, Data curation. **Ai-Lan Nguyen:** Writing – review & editing, Project administration, Data curation. **Marialuisa Cavelti:** Writing – review & editing, Writing – original draft. **Michael Kaess:** Writing – review & editing, Writing – original draft, Resources, Project administration, Methodology, Formal analysis, Data curation, Conceptualization.

### Declaration of competing interest

The authors have no conflicts of interest to declare.

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