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Title:

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Date:

2022-06-01

Citation:

Cotton, S. M., Filia, K. M., Lambert, M., Berk, M., Ratheesh, A., Schimmelmman, B. G., Macneil, C., Hasty, M., McGorry, P. D. & Conus, P. (2022). Not in education, employment and training status in the early stages of bipolar I disorder with psychotic features. *Early Intervention in Psychiatry*, 16 (6), pp.609-617. <https://doi.org/10.1111/eip.13203>.

Persistent Link:

<https://hdl.handle.net/11343/298788>

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NEET in the early stages of BD

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Not in education, employment and training (NEET) status in the early stages of bipolar I disorder with psychotic features

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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.13203](https://doi.org/10.1111/eip.13203)

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Abstract

Objective: There is a lack of existing research regarding young people with bipolar I disorder (BD-I) and psychotic features, who are not in education, employment, and training (NEET). Thus, the aims of the study were to: (i) establish rates of NEET at service entry to a specialist early intervention service; (ii) delineate premorbid and current variables associated with NEET status at service entry; and (iii) examine correlates of NEET status at discharge.

Method: Medical file audit methodology was utilised to collect information on 118 patients with first episode psychotic mania treated at the Early Psychosis Prevention and Intervention Centre (EPPIC), Melbourne, Australia. NEET status was determined using the Modified Vocation Status Index (MVCI). Bivariate and multivariable logistic variables were used to examine relationships between premorbid, service entry and treatment variables, and NEET status at service entry and discharge.

Results: The NEET rate was 33.9% at service entry, and 39.2% at discharge. Variables associated with NEET status at service entry were premorbid functioning and polysubstance use. NEET status at service entry was the only significant correlate of NEET status at discharge. When service entry NEET was taken out of the model, substance use during treatment was predictive of NEET status at discharge.

Conclusions: NEET status at service entry was related to a history of premorbid decline, and risk factors such as substance use and forensic issues. NEET status can decline during treatment, and utility of vocational intervention programs specifically for BD, in addition to specialist early intervention, needs to be examined.

Keywords: bipolar disorder, psychosis, education, employment, substance use, functioning, early intervention

In the early stages of bipolar I disorder (BD-I), functional recovery is less common than symptomatic recovery (Conus et al., 2006). Vocational functioning in BD is surprisingly poor, despite this group often displaying exemplary premorbid school performance (MacCabe et al., 2010), and higher rates of university entry than patients with schizophrenia (Vreeker et al., 2016). If functional recovery is not achieved early, positive outcomes are rarely attained later (Tohen et al., 2000). Research on Australians aged 16-25 diagnosed with BD, showed that more than 30% had some degree of functional impairment (Scott et al., 2014). Further, ~30-60% of individuals fail to regain functioning after an affective episode (MacQueen, Young, & Joffe, 2001). These psychosocial impairments prevail, even during periods of euthymia (Howler et al., 2019) and similarly continue to impact individuals even when employment is obtained, with experiences of underperformance and absenteeism and nearly 50% will experience a decline in functional status over time (Dean, Gerner, & Gerner, 2004; Marwaha, Durrani, & Singh, 2013).

Poor vocational functioning has implications for affected individuals, their families, and also contributes to lost productivity. Lifetime cost per individual for BD-I is high (~AUD\$160, 671) due to higher reliance on government benefits (34.1%), time off work (72.7%), and periods of hospitalisation especially compared to BD-II and unipolar depression (Parker, McCraw, & Hadzi-Pavlovic, 2013). Scott et al. (2014) reported that 36% of their young bipolar cohort (16-25 years) were receiving Australian welfare payments, with 6% on the Disability Support Pension.

Most of the research on vocational functioning in BD is on employment, with little consideration of the developmental transition from education to employment or other educational settings (e.g., tertiary education). Such transitions are particularly important from adolescence to young adulthood. Not in employment, education or training (NEET) status is one index of vocational functioning that is used to demarcate the successful transition from education into the workforce (Rodwell et al., 2018). The term is particularly useful for examining poor functioning in young people (OECD., 2016). NEET includes young people who are not engaged in such activities, as well as those undertaking non-formal education or short courses, and/or in paid work for less than one hour a week (OECD., 2016).

NEET status in young people with a first episode psychosis (FEP) has been found to be associated with a distinct trajectory of unrelenting symptoms, and functional decline that occurs prior to the disorder onset (Iyer et al., 2018). Such prospective research is required in BD, to facilitate identification and a better understanding of targets for intervention and service planning (Marwaha et al., 2013).

The literature pertaining to employment and NEET status in BD is scant. There has been little consideration of differences in employment outcomes between BD-I and BD-II (Gilbert & Marwaha, 2013). Further, most of the research has examined whether manic, depressive and/or mixed episodes are predictive of employment outcomes; with findings that depressive symptoms are the

most predictive of poor employment outcomes (Gilbert & Marwaha, 2013; Tse, Chan, Ng, & Yatham, 2014). The impact of positive psychotic symptoms in BD-I on employment outcomes has been understudied (Gilbert & Marwaha, 2013).

To the authors' knowledge, no previous literature reports on NEET status in young people (15-29 years) with early-stage BD-I with psychotic features. Thus, we have no information about specific variables related to NEET status at discharge from specialist early intervention services. Thus, the aims of the study were threefold to: (i) establish rates of NEET at service entry to a specialist early intervention service; (ii) delineate premorbid and current variables associated with NEET status at service entry; and (iii) examine correlates of NEET status at discharge. Based on the literature on functioning in FEP, we hypothesized that poor premorbid functioning and fewer years of education will be the strongest predictors of NEET status at service entry. We also anticipated that these variables will also be strong predictors of NEET status at service discharge.

Materials and methods

Design

This was a medical file audit study (Conus, Cotton, Schimmelmann, McGorry, & Lambert, 2007), approved by the local research and ethics committee.

Sample and setting

The sample comprised young people (15-29 years) with a first episode of BD-I with psychotic features. They were part of a larger cohort of people with FEP from the First Episode Psychosis Outcome Study (FEPOS), 661 consecutive patients who received treatment from the Early Psychosis Prevention and Intervention Centre (EPPIC) between 1998 and 2000 (Conus et al., 2007). EPPIC is a specialist early intervention service offering up to 18 months of care for youth experiencing a FEP and residing in the western and north-western suburbs of Melbourne, Australia.

Young people treated at EPPIC at this time had access to medical review, clinical case management and the opportunity to participate in group programs, including some vocationally focused groups (Conus et al., 2007; Cotton et al., 2011; Edwards & McGorry, 2002). Some young people were referred to other services to tackle issues associated with housing, welfare, or employment. Young people could also receive disability support and unemployment benefits from external agencies.

Materials

The Early Psychosis File Questionnaire (EPFQ) was used to systematically assess consecutive medical files (Conus et al., 2007).

Functional status

NEET status (yes/no) was assessed using the Modified Vocational Status Index (MVSI; Tohen et al., 2000). The MVSI has seven occupation levels including: (1) full-time gainful employment (≥ 30 h/week); (2) student; (3) part-time gainful employment (< 30 h/week); (4) retired; (5) full- or part-time volunteer; (6) on medical or psychiatric leave of absence; and (7) unemployed, whether or not expected to work. Individuals could only fall into one of the seven categories. NEET status was defined as not working (either part- or full-time) or studying/training. Those who were on leave, retired or a volunteer were also assigned NEET status.

Diagnosis

Intake diagnoses were determined by qualified EPPIC clinicians (Conus et al., 2007). Medical files were reviewed by two research psychiatrists (ML and PC). Consensus ratings were obtained between the research psychiatrists and patients' case managers. For 115 randomly selected patients, the Structured Clinical Interview for DSM-IV Axis I Disorders – Patient version (SCID-I/P) diagnoses had been completed, and validity of FEPOS discharge diagnoses could be determined. There was good concordance for both psychotic (Cohen's $\kappa=0.80$) and substance use (Cohen's $\kappa=0.74$) diagnoses (Conus et al., 2007). Discharge diagnosis was used to determine those patients with a diagnosis of BD-I, and was preferred over intake diagnosis given diagnostic instability during early stages of the illness (Schimmelmann, Conus, Edwards, McGorry, & Lambert, 2005).

Pre-treatment characteristics

A range of information on patients' status prior to service entry was obtained. Information included: premorbid functioning in the 12-months preceding illness onset (based on global assessment of functioning, GAF (see Bowling, 1997 for discussion of use of GAF over 12-months)); past psychiatric history (using DSM-IV-TR criteria); family history of psychiatric disorders; history of substance use disorders (SUD), using the Drug and Alcohol Assessment schedule (DASS; McGorry, Copolov, & Singh, 1990); exposure to trauma (physical or sexual; Conus, Cotton, et al., 2010; Conus, Lambert, et al., 2010); years in education; and forensic history (offence against property, motor traffic, drug-related offences, offences against persons; Marion-Veyron et al., 2015).

Service entry

Features assessed at service entry included: severity of illness, using the Clinical Global Impressions [CGI; severity of illness scale (CGI-S; Guy, 1976) and bipolar scale (CGI-BP; Spearing, Post, Leverich, Brandt, & Nolen, 1997)], substance use disorder (SUD); functioning (GAF), level of independence [using the Modified Location Code Index (MLCI; Tohen et al., 2000)], and insight [using a three-point scale ranging from 0 'absence of insight' to 2 'full insight' (Conus et al., 2007)].

Treatment characteristics

Length of time in service was calculated as the difference between date registered with EPPIC and discharge date (number of weeks). Treatment non-compliance was defined as not taking antipsychotic medication for more than 80% of the time for a week or more (Lambert et al., 2005). Number of hospitalisations were also noted. The evolution of SUD's during treatment was assessed three-point rating scale: 0 'no SUD'; 1 'no change', restart or increase in SUD; and 2 'decreased or stopped SUD' (American Psychiatric Association., 1994).

Procedure

Two consultant psychiatrists (ML and PC) who were employed at EPPIC and had thorough knowledge of the program, used the EPFQ to assess the medical files. Both ML and PC had been involved in treatments of some of the patients; however, they randomly assessed the medical files. If one rater was uncertain about a specific rating, then the other rater reviewed the file, and then there was discussion of the case until consensus was achieved. If uncertainty persisted, the client's case manager and treating team were contacted for further information so the rating could be made. This process occurred in 12% of cases. Inter-rater reliability was calculated for a random selection of 40 medical files stratified by time. Inter-rater reliability ranged from good to very good (CGI-S: 0.87, CGI-BP mania severity score: 0.89, CGI-BP depression severity score: 0.87, GAF score: 0.88, SOFAS score: 0.92, Insight score: 0.89) (Conus et al., 2007).

Data analyses

A series of logistic regression models were conducted to establish premorbid and service entry variables associated with service entry NEET status (yes/no). From these models, unadjusted odds ratios (OR) and the 95% confidence intervals (CI) of ORs were calculated. The Wald statistic (χ^2) was used to delineate the significance of the associations. From these models, variables that were associated with NEET status at the $p < .10$ level were then entered into a multivariate logistic regression model. We were then able to determine which variables best discriminated between those who did and did not have NEET status at service entry. A similar approach was adopted to look at variables associated with discharge NEET status (NEET yes/NEET no). For these later analyses, we also examined treatment-related variables in relation to NEET status.

Results

Of the 661 patients in the FEPOS cohort, 118 had an 18-month discharge diagnosis of BD-I with psychotic features. At entry to the service, data on NEET status was available for these 118 individuals. Of these, 30 were in full-time employment, 8 in part-time employment, and 40 were undertaking formal studies. There were 39 who were unemployed and one individual who did volunteer work. Therefore, 33.9% ($n=40$) of the cohort had NEET status.

Table 1 comprises details on the premorbid and service entry characteristics associated with NEET status. NEET status was associated with fewer years in education (OR=0.71), lower premorbid functioning (OR=0.91), a forensic history (OR=2.71), and a past history of SUD (OR=3.71). At service entry, having a SUD (OR=2.95), and particularly polysubstance SUD were associated with NEET status (OR=9.48). Polysubstance SUD was defined as at least three different substances for at least 12 months without preference for one of the substances (Lambert et al., 2005). These variables were entered into a multivariate logistic regression. With the five variables in the model, the Nagalkerke R^2 was .32, and overall correct classification of 76.1% of cases. Detection of NEET status was fair at 52.6%. Two variables associated with NEET status were lower premorbid functioning (OR=0.93, 95%CI of OR [0.89, 0.98], $p=.007$); and polysubstance SUD at service entry (OR=4.60, 95%CI of OR [1.04, 20.23], $p=.043$).

(Insert Table 1 about here)

At discharge, NEET status was available for 102 patients: 26 were working full-time, 7 part-time, 29 were studying, 38 unemployed and 2 were undertaking volunteer work. As such, 39.2% ($n=40$) of 102 with follow-up data, had NEET status at discharge. NEET status at baseline was associated with NEET status at follow-up, $\chi^2(1)=17.30$, $p<.001$. Of those with NEET status at discharge, 57.5% ($n=23$) had NEET status at service entry. Of those with NEET status at discharge, 42.5% ($n=17$) did not have a NEET status at baseline, indicating a decline in functioning. Of those who were not NEET at discharge, 17.1% ($n=11$) had NEET status at entry, indicating improvement in functioning.

Those who did ($n=102$, $M=32.37$, $SD=9.86$) and did not have follow-up data ($n=16$, $M=24.31$, $SD=6.67$) differed significantly only with respect to premorbid GAF, OR=1.11 (95% CI of OR [1.03, 1.18], $p=.003$).

Discharge NEET status was significantly associated with premorbid GAF (OR=0.90), forensic history (OR=3.71), CGI-S at service entry (OR=1.75), NEET status at service entry (OR=6.27) and time in service (OR=.98). Also SUD prior to service entry (OR=3.58), at service entry (OR=3.44, specifically polysubstance SUD, OR=4.21), and SUD during treatment (OR=3.67), were all associated with discharge NEET status (see Table 2). These variables, along with gender and education (both had $p<.001$), were entered into a multivariable logistic regression. With the ten variables in the model, the Nagalkerke R^2 was .38, and overall correct classification of 75.3% of cases. Detection of NEET status was fair at 54.1%. The only significant predictor of discharge NEET

status was NEET status at entry (OR=4.48, 95% CI of OR [1.24, 16.16], $p=.022$). Given NEET status at entry might mask the predictive strength of other variables, we re-ran the model without NEET status at entry as a predictor. With the new revised model, the Nagalkerke R^2 was .32, and there was overall correct classification of 74.2% of cases. Correct identification of NEET status at follow-up was at 48.6%. The only significant predictor of discharge NEET in this revised model, was SUD during treatment (either restart, persistent, or increased substance use), (OR=2.97, 95%CI of OR [1.07, 8.26], $p=.037$).

(Insert Table 2 about here)

Discussion

NEET status is an important indicator of functioning in young people that captures the transition from education into the workforce (OECD., 2016). NEET status has been considered a marker of later vulnerability and social exclusion (Braggio et al., 2015). This is the first paper to examine rates and correlates of NEET status in young people with BD-I with psychotic features. Key findings were: rates of NEET at both entry and service discharge were substantially higher than the general population; there was a history of functional decline and SUD (especially polysubstance SUD) associated with NEET at service entry; and SUD during treatment and service entry NEET status were associated with discharge NEET status. These findings highlight that in young people in the early phases of BD-I with psychotic features, there is not only the need to focus on functioning (including both education and employment) but also the impacts of comorbid SUD.

Rates of NEET status

In our cohort, 33.9% had NEET status at service entry; this rate is three times the rate of Australian youth in the general community in 2015 (11.8%; OECD., 2016). It is also much higher than the 19.0% documented in a cohort of help-seeking Australian youth aged 12-25 who presented to the youth focused mental health and general health service (O'Dea et al., 2014). However, this rate is unsurprisingly similar to those reported in young people with FEP (Iyer et al., 2018). These figures demonstrate how vulnerable young people are to vocational disengagement at presentation for their first episode of psychotic mania.

At service discharge, 39.2% of the cohort had NEET status, and 42.5% of those had experienced decline in functioning from service entry to discharge. Although specialist early intervention programs can lead to better functioning in patients compared to standard care (Dewa, Trojanowski, Cheng, & Loong, 2012; Garety et al., 2006), a drop in functioning during treatment can still occur (Bond, Drake, & Luciano, 2016; Drake, Bond, Goldman, Hogan, & Karakus, 2016; Dudley, Nicholson, Stott, & Spoons, 2014). As such, a plethora of research has emerged regarding supplementing early intervention with specialised vocational interventions including individual placement support (IPS) for psychotic disorders more broadly (e.g., Erickson, Roes, DiGiacomo, & Burns, 2020; Hegelstad, Joa, Heitmann, Johannesen, & Langeveld, 2019; Killackey et al., 2019). However, there is an absence of research on the utility of IPS specifically for BD.

Variables related to NEET status

Prior to service entry, variables were associated with service entry NEET status were education, substance use, and forensic issues. These variables might have contributed to reduced premorbid functioning. Forensic problems are common in individuals with BD and are often associated with substance misuse and SUD (Fovet et al., 2015). These findings are contradictory to the belief that all young people with BD have excellent peer and academic functioning prior to illness

onset (Kutcher, Robertson, & Bird, 1998); others have similarly found poorer premorbid function (Ratheesh et al., 2018; Ratheesh et al., 2017). These findings might be more apparent in our cohort, as at EPPIC, we capture the most ill and vulnerable BD-I patients with psychotic features; patients with less severe mental health difficulties are likely to be triaged to other services. In studies of young people with psychosis and NEET status, persistent symptoms and functional decline often occur before presenting to services (Iyer et al., 2018). Furthermore, in young people with FEP, a history of offending behaviour has been associated with lower premorbid functioning, educational difficulties, and substance use problems and SUD (Marion-Veyron et al., 2015).

In our study, BD-I patients who with polysubstance SUD at service entry, were 4.60 times more likely to have NEET status at service entry, after controlling for other variables such as education, premorbid GAF, forensic history, and past history of SUD. Although having a diagnosis of BD is associated with functional impairment, substance use comorbidity has added damaging effects to functioning (de Azevedo et al., 2015) and particularly education and employment (Lagerberg et al., 2010).

Interestingly, in our cohort, despite a range of variables being considered, the only variable associated with discharge NEET status in the multivariable analysis was NEET status at service entry; supporting previous findings that baseline functioning is often the best predictor of employment outcomes (Rössler et al., 2019). We also re-ran the model without entry NEET status, and found that SUD during treatment predicted discharge NEET status. This highlights a complex interplay between functioning and SUD, and that a persistent SUD can lead to deleterious employment outcomes.

Clinical Implications

There is a lack of psychotherapeutic, comorbid substance abuse and vocational rehabilitation interventions for young people in the early stages of BD (Cotton et al., 2019; Jauhar et al., 2019; Vallarino et al., 2015). The earlier delivery of interventions increases the likelihood that years lived with disability and poor functioning are diminished (Iyer et al., 2018; Lee et al., 2017). Key issues that need addressing in the early phase of illness include appropriate diagnosis, functioning, engagement, treatment adherence, and the impact of comorbidities such as substance use (Colom, 2010; Cotton et al., 2019; de Azevedo et al., 2015; Gold et al., 2018; Macneil, Hasty, Conus, Berk, & Scott, 2009).

Limitations

There are a number of limitations associated with our study. First, although the data was collected some time ago, it is still important from an observational perspective of the illness trajectory and treatment outcomes of individuals with BD in specialist early intervention services. Importantly, this data may be considered a historical control for determining the utility of IPS in EPPIC (Killackey et al., 2019; Killackey, Jackson, & McGorry, 2008).

Second, we did not examine the quality of employment and studying. Individuals with BD may have problems with keeping engagement in the workforce rather than gaining employment (Marwaha et al., 2013). Variables such as absenteeism and presenteeism may also be of use (Scott et al., 2014; Tse et al., 2014). Also there is little work on whether employment matches this group's education background and work history, or whether they are underemployed (Tse et al., 2014).

Third, we did not collect information on the range of possible treatments and interventions received by the young people during their 18 months at EPPIC. Therefore, we cannot make claims about which components of treatment can improve employment outcomes in this cohort.

Fourth, the direction of causality of NEET and mental health problems cannot be determined. Some have argued that mental health problems and substance use precede disengagement from education and employment (Braggio et al., 2015); however, it is likely that the relationship is bidirectional with difficulties in educational settings and in the workplace also increasing the likelihood of poor mental health..

Fifth, we did not assess key factors such as cognitive functioning – which can be predictive of social and occupational functioning in BD (Ehrminger et al., 2019; Kapczinski et al., 2016; Van Rheenen et al., 2020). Indeed, substance use and cognitive functioning can both impact vocational engagement (de Azevedo et al., 2015). Other factors such as health status and negative symptoms have also been associated with functional outcomes in BD (Strassnig et al., 2017).

A final limitation pertains to the sample characteristics. The sample size was small and patients were from a specialist early intervention clinic. The small sample size may impact on the power to examine variables associated with discharge NEET status. These findings also cannot be generalised to non-psychotic BD or people seen in non-tertiary settings.

Conclusions

To the authors knowledge, this is the first study that involved examination of NEET status in young people in the early stages of BD-I with psychotic features. Focusing on NEET has offered a new perspective on the impact of BD on functional outcomes. Functional decline can occur prior to the first episode of psychotic mania and as such, earlier detection and intervention is required to reduce long-term disability. The importance of managing comorbidities such as substance use is also highlighted.

Data Availability

The data are currently part of an ongoing study at Orygen and are currently unavailable for public use. For further information, contact the corresponding author.

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Table 1

Bivariate associations between pre-treatment, diagnostic and service entry variables associated with NEET status at entry to EPPIC for 118 patients with BD-I

Variables		NEET status		OR	95% CI of OR		p value
		No (n=79)	Yes (n=39)		LCI	UCI	
Pre-treatment variables							
Gender %Male	% (n)	56.4 (44)	67.5 (27)	1.61	0.72	3.57	.246
Years in school	M (SD)	11.4 (1.4)	10.7 (1.4)	0.71	0.54	0.93	.014
Pre-morbid GAF	M (SD)	77.5 (8.9)	67.9 (11.1)	0.91	0.87	0.95	<.001
Forensic history (%Yes)	% (n)	15.6 (12)	33.3 (13)	2.71	1.09	6.70	.031
Suicide attempt (%Yes)	% (n)	5.1 (4)	5.1 (2)	1.00	0.18	5.71	1.00
Past history of sexual trauma (%Yes)	% (n)	12.8 (10)	20.0 (8)	1.7	0.61	4.72	.308
Past history of physical trauma (%Yes)	% (n)	12.8 (10)	22.5 (9)	1.97	0.73	5.34	.181
Diagnostic variables							
<i>Past history</i>							
Major Depressive Disorder (%Yes)	% (n)	46.2 (36)	35.0 (14)	0.63	0.29	1.38	.247
Substance use disorder (SUD) (%Yes)	% (n)	65.4 (51)	87.5 (35)	3.71	1.30	10.56	.014
<i>Baseline</i>							
Substance use disorder (SUD) (%Yes)	% (n)	53.8 (42)	77.5 (31)	2.95	1.24	7.02	.014
Polysubstance (%Yes)	% (n)	3.8 (3)	27.5 (11)	9.48	2.47	36.46	.001
Cannabis (%Yes)	% (n)	48.7 (19)	46.8 (37)	1.17	0.54	2.50	.692
Service entry variables							
Age	M (SD)	22.6 (3.2)	22.2 (3.1)	0.96	0.85	1.09	.529
Severity of symptoms at entry							
CGI-S severity score	M (SD)	5.6 (0.8)	5.8 (0.8)	1.32	0.79	2.20	.288
CGI-BP mania	M (SD)	4.5 (1.8)	4.8 (1.6)	0.89	0.71	1.20	.890
Insight at entry (%No)	% (n)	74.0 (57)	67.5 (27)	0.73	0.32	1.68	.458
Functional level at entry							
GAF	M (SD)	31.9 (9.4)	30.0 (10.7)	0.98	0.94	1.02	.308
Living with family (%Yes)	% (n)	54.4 (43)	42.1 (16)	0.61	0.28	1.33	.210

Note: CGI-S, Clinical Global Impressions - Severity of Illness; CGI-BP, Clinical Global Impressions - Bipolar Disorder; GAF, Global Assessment of Functioning; LCI, Lower Confidence Interval; HCI, Higher Confidence Interval

Table 2

Bivariate associations between pre-treatment, diagnostic, service entry and treatment variables and NEET status at discharge from EPPIC for 102 patients with BD-I

	NEET status at discharge		OR	95% CI of OR		p value
	No (n=62)	Yes (n=40)		LCI	UCI	
Pre-treatment variables						
Gender %Male	53.2 (33)	72.5 (29)	2.32	0.99	5.45	.054
Years in school	11.3 (1.5)	10.7 (1.5)	0.77	0.58	1.02	.072
Premorbid GAF	76.3 (9.3)	69.5 (11.3)	0.94	0.90	0.98	.003
Forensic history (%Yes)	13.1 (8)	35.9 (14)	3.71	1.38	9.99	.009
Suicide attempt (%Yes)	6.6 (4)	5.0 (2)	1.33	0.23	7.65	.747
Past history of sexual trauma (%Yes)	16.1 (10)	15.0 (6)	0.92	0.31	2.76	.878
Past history of physical trauma (%Yes)	12.9 (8)	22.5 (9)	1.96	0.69	5.6	.209
Diagnostic variables						
<i>Past history</i>						
Major Depressive Disorder (%Yes)	45.2 (28)	32.5 (13)	0.59	0.26	1.34	.205
Substance use disorder (SUD) (%Yes)	61.3 (38)	85.0 (34)	3.58	1.31	9.80	.013
<i>Baseline</i>						
Substance use disorder (SUD) (%Yes)	50.0 (31)	77.5 (31)	3.44	1.41	8.42	.007
Polysubstance (%Yes)	6.5 (4)	22.5 (9)	4.21	1.2	14.78	.025
Cannabis (%Yes)	40.3 (25)	55.0 (22)	1.81	0.81	4.04	.148
Service entry variables						
Age	22.1 (3.4)	22.7 (2.9)	1.06	0.93	1.20	.380
<i>Severity of symptoms at entry</i>						
CGI-S severity score	5.5 (0.8)	5.9 (0.7)	1.75	1.01	3.07	.047
CGI-BP mania	4.4 (1.8)	4.8 (1.6)	1.13	0.88	1.44	.338
Insight at entry (%No)	65.6 (40)	72.5 (29)	1.38	0.58	3.310	.465
<i>Functional level at entry</i>						
GAF	33.6 (9.6)	30.4 (10.02)	0.97	0.92	1.01	.108
NEET (%Yes)	17.7 (11)	57.5 (23)	6.27	2.54	15.49	<.001
Living with family (%Yes)	58.1 (36)	46.2 (18)	0.62	0.28	1.39	.244
Treatment variables						
Time in service (in weeks)	69.3 (26.0)	51.4 (37.9)	0.98	0.97	0.99	.008
Number of admissions ^b	1.2 (0.8)	1.6 (1.4)	1.39	0.93	2.07	.111
Noncompliance with treatment (%Yes)	44.8 (26)	40.5 (15)	0.84	0.36	1.94	.681
<i>Substance use during treatment^b</i>						
No substance use	48.4 (30)	22.5 (9)	-	-	-	-
No change, restart or increase	8.1 (5)	37.5 (15)	3.67	1.75	7.82	.001
Decrease or stop	48.4 (30)	22.5 (9)	0.73	0.41	1.13	.731

Note: GAF, Global Assessment of Functioning; CGI-S, Clinical Global Impressions - Severity of Illness; CGI-BP, Clinical Global Impressions - Bipolar Disorder; LCI, Lower Confidence Interval; HCI, Higher Confidence Interval