Post-crisis Mental Health Service Utilisation: a comparison between Mood Disorder and Emotionally Unstable Personality Disorder patients in a real-world dataset.

Eleanor Kirman

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Contents

ABSTRACT

BACKGROUND: High service utilisation amongst Emotionally Unstable Personality Disorder (EUPD) patients, particularly crisis services, is well-documented. Differences in treatment patterns compared to mood disorder (MD) patients remain unclear.

AIMS: This study compared mental health service utilisation in MD and EUPD patients following ED presentation for self-harm or suicidal behaviours.

METHODS: A retrospective longitudinal design examined 331 patients over three years using SLaM data (EPR, HES, CRIS). Patients were grouped via ICD-10 codes: MD (F30-39, N=191) and EUPD (F60.3, N=140). Seven utilisation variables were analysed: days under SLaM, inpatient days, HTT days, crisis attendances, inpatient admissions, MHA days, and psychotherapy events.

RESULTS: Mann-Whitney U and negative binomial regression indicated EUPD patients had higher service use across most measures. They spent more days under SLaM, had more inpatient admissions, crisis attendances, MHA days, and psychotherapy events (effect sizes d=0.23–0.47). Regression showed EUPD patients had 96% more crisis attendances and admissions than MD patients ($p<.001$). MD patients had 19% fewer days under SLaM, 75% fewer psychotherapy events ($p<.001$), 76% fewer MHA days ($p=.009$), and 116% more HTT days ($p=.034$).

CONCLUSIONS: EUPD patients demonstrate greater overall and crisis-focused service utilisation than MD patients, highlighting the need for targeted interventions, like brief admissions, to prevent repeated crises.

1.0 Introduction

1.1 Self-harm and Suicidality in the Emergency Department

Self-harm (SH) is defined as any act of intentional self-injury or self-poisoning carried out by an individual irrespective of motivation (NICE, 2022). SH behaviours can be viewed as existing on a continuum, including deliberate self-harm (DSH) and non-suicidal self-injury (NSSI) (Curtis, 2024). In the UK, an estimated 220,000 people present annually to the emergency department (ED) with SH (Hawton et al., 2007). For many this encounter may be their first entry to mental health services or indicative of psychiatric crisis, thus it is a key point to consider for early escalation management and improving treatment access to those most at risk (Robinson & Bailey, 2022). In a recent report from the Royal College of Psychiatrists (RCP), SH was cited as the strongest predictor of later completed suicide, with comorbid psychiatric illness as a significant risk factor for engaging in either behaviour (RCP, 2020). 109 people die by suicide in the UK every week, with SH the leading cause of death across both sexes in the age groups 5-19 and 20-34 years old (ONS, 2023). Amongst all psychiatric diagnoses, patients with mood and personality disorders are at high risk of presenting to the ED with SH or suicide. By understanding the patterns of these behaviours and treatment trajectories post-ED attendance, these patients can be earlier identified and preventative measures and treatment strategies can be put in place.

1.2 Shared symptoms of mood and personality disorders

Mood disorders encompass both bipolar and depressive disorders, characterised by marked emotional fluctuations. Major depressive disorder (MDD) involves periods of severe low mood (depression) with vegetative symptoms such as anhedonia, insomnia, a change in weight or appetite, psychomotor agitation and difficulty concentrating (APA, 2022). Bipolar disorder (BD) involves alternating depressive and manic or hypomanic episodes with mania marked by elevated mood, increased self-esteem, heightened productivity or goal-oriented activity, decreased need for sleep and engagement in impulsive or risky behaviours (APA, 2022; Sekhon & Gupta, 2020). Suicidal behaviour is common in mood disorder patients;

those with BD have a 20-30 times greater risk of dying by suicide than the general population (Pompili et al., 2013). Suicidal ideation is almost always present in severely depressed patients though less during mania (Isometsa, 2014; Aaltonen et al., 2020).

SH and suicidality are also prevalent in personality disorder patients; particularly emotionally unstable personality disorder (EUPD), with a lifetime average number of three suicide attempts (Soloff, 2000). Emotional dysregulation, difficulties with interpersonal relationships, impulsivity and an unstable sense of self or identity are other hallmark features of personality disorders(APA, 2022). These features must be part of an enduring, pervasive pattern of behaviour that leads to significant impairment and distress for an individual. With a high number of suicide attempts probable for these patients, chronic suicidality, defined as recurrent attempts, ideation and SH, has been integrated into the diagnostic criteria for EUPD.

Linehan's biosocial theory links EUPD to poor emotion regulation and maladaptive self-regulatory behaviours such as NSSI (Linehan, 1993). Hence, it can be difficult to decipher if this suicidality is indicative of definite intention; self-injurious action may be used as an emotional coping strategy or to regain a sense of agency (Colle et al., 2020). EUPD patients are also well-known, and unfortunately stigmatised, for being difficult, quarrelsome and more likely to abscond when under mental health services, corroborating the well-established feature of impulsivity as a feature of EUPD (Sulzer, 2015). Impulsivity, defined as rapid, unplanned behaviours or action, may be underpinned by the desire for immediate gratification. Therefore impulsive SH or suicide attempts could be a relieving experience for those with EUPD and may or may not be underpinned by severe low mood or suicidal intent (Lawrence et al., 2010).

Conversely, in mood disorder patients, suicidality may follow a more episodic pattern; mostly occurring in major depressive episodes (MDE) and mixed episodes, and rarely during mania (Isometsa, 2014). Mixed episodes combine both depressive and subsyndromal manic or hypomanic symptoms which, along with leading to a high rate of misdiagnosis, may also be more likely to drive suicidality (Hu et al., 2014). This is due to the extreme low mood experienced during a depressive episode compounded by increased activity or impulsivity in

mania, meaning an individual may be more likely to act on suicidal thoughts (Lage et al., 2019). Suicidality in mood disorders is often perceived as having a greater degree of intent and will to die, and to be a more premeditated, planned act than more impulsive attempts (Soloff, 2000). Historically, the multiaxial system distinguished Axis I (episodic) from Axis II (chronic) disorders, highlighting temporal stability differences (Skodol et al., 2010).

1.3 Disentangling diagnoses

From the above discussion, both groups share similar symptoms; it is not uncommon for EUPD and BD to exist comorbidly, with the presence of both together predictive of earlier SH or suicide (Galfalvy et al., 2006). EUPD is often underdiagnosed, with psychiatrists favouring mood disorder diagnoses as the latter is perceived to have a more robust neuroscientific basis (Paris & Black, 2015). BD is most frequently confused with EUPD as affective instability (AI) is present in both. Differentiation relies on careful clinical assessment; AI in EUPD involves shifts from euthymia to anger whereas in BD, AI is seen within rapid-cycling from depression to elation (Koenisburg, 2010). Misdiagnosis of EUPD was highlighted in a study using structured clinical interviews, finding that 24% of those diagnosed with BD fitted the criteria for EUPD better (Zimmerman et al., 2009). This misdiagnosis may have serious implications for the timeliness and effectiveness of treatment.

Effective EUPD treatments include dialectical behaviour therapy (DBT) and psychodynamic approaches, such as transference-based therapy (TBT) and mentalisation-based therapy (MBT) proving most effective (Cristea et al., 2017). MBT has shown promise in reducing suicidality and therefore hospitalisation in EUPD patients with treatment lasting for a minimum of 12 to 18 months (Bateman & Fonagy, 2009). Up to 70% of patients can reach remission with appropriate therapy, with only around 6% of those experiencing recurrences, emphasising the importance of an accurate initial diagnosis (Zanarini et al., 2003). Medication is effective in accurately diagnosed BD and MDD (NICE, 2014) but shows limited benefit in EUPD; lithium and lamotrigine do not significantly improve symptoms (Kendall et al.,

2010).With differing treatment pathways for mood and personality disorders, discussion of distinct engagement with services is necessary.

1.4 Patterns of service utilisation

Investigation into engagement with treatment for EUPD patients has shown a greater use of mental health provision compared to other groups. In particular these patients tended to have a higher number of inpatient hospitalisations, consistent with SH/suicidal chronicity, and outpatient medical contact (Ansell et al., 2007). Compared to MDD patients, Bender et al's longitudinal study demonstrated that EUPD patients maintained consistent service use when monitored over a three-year period but this entailed high intensity, shorter duration treatment. Additionally, due to the effectiveness of medication in the mood disorders group, EUPD patients were more likely to have received different types of psychosocial therapy, except self-help or family therapy (Bender et al., 2006). This is reflective of the EUPD treatment guidelines which state that individual or group psychotherapy and monitoring by a community mental health team (CMHT) should be delivered first-line (NHS, 2021). Out of EUPD patients who are hospitalised, it is estimated that 10% of these patients will take their own life so it is vital the value of inpatient admission is established (Paris, 2004).

MD patients also contribute significantly to psychiatric admissions; depressive symptoms in BD patients have been strongly associated with recurrent readmissions into hospital (Nagarajan et al., 2022). With increasing awareness and reduced stigma, treatment-seeking has become more prevalent making understanding service utilisation patterns crucial for resource allocation. TGiven the lifetime prevalence of MDD of 12% and predicted disease burden (Bains and Abdijadid, 2020), distinguishing service patterns between MD and EUPD patients can improve targeted care.

1.5 Key previous studies

There are few studies comparing EUPD and MD groups via treatment utilisation patterns. Some have sought to examine only the economic burden associated with the healthcare costs

for each group, whilst others have examined only MDs or EUPD without a comparative element (Bode et al., 2016).

One key study, the McLean Study of Adult Development (MSAD) compared treatment utilisation with EUPD patients with axis II disorder patients prospectively across six years in Belmont, Massachusetts. The MSAD found that, compared to axis II disorder patients, EUPD patients had significantly higher use of individual psychotherapy and medication, as well as a greater number of psychiatric hospitalisations at the end of the six years (Zanarini et al., 2003). Then, a ten-year follow up of the MSAD was conducted, which indicated that EUPD patients utilised outpatient services for prolonged durations. It is also suggested this group had a higher likelihood of terminating their service use (medication, psychotherapy or hospitalisations) and resuming them within a year. However, this study was conducted before specific psychotherapeutic approaches were evidenced for EUPD such as Dialectical Behaviour Therapy (DBT) and Mentalisation Based Treatment (MBT) thus no patients were treated specifically for the disorder, which in turn may have affected their service use.

The Collaborative Longitudinal Personality Disorders Study (CLPDS) was a second key study which followed a cohort of various different PD patients over three years and compared them to a MDD group and a no PD group. This study corroborated and extended the MSAD's findings, showing that EUPD patients attended the ED and used psychiatric services more frequently than other groups, using high intensity, low-duration treatments (Bender et al., 2006). Both studies have provided invaluable data regarding the differences in these two psychiatric populations' pattern of service use but, due to their prospective design, did have some attrition of participants. Additionally, these studies used self-reported treatment utilisation to measure variables such as attendance at the ED, use of medication or psychotherapy. Therefore, a retrospective design using data from patient records could address these limitations to robustly differentiate if these two groups are characterised by different patterns of contact with services post-ED presentation under NHS mental health services.

1.6 Aim of the current study

This study will investigate and compare the variety and duration of contact with mental health services following initial presentation to the ED in patients with mood disorders or EUPD. To address this, the database utilised was comprised of patients who all presented to ED with SH or suicidal behaviours ensuring a uniform initial starting point of symptom severity.

The primary objective is to establish whether one cohort has a higher frequency of admissions and utilisation of resources compared to the other. This paper will also examine the demographic characteristics of these groups including age at attendance, gender and ethnicity to further illuminate potential factors affecting service engagement. This paper aims to build on the current understanding of healthcare resource allocation and treatment for individuals presenting to the ED with SH and suicide behaviours to further inform strategies for early intervention and improve access for those at greater risk. The research objectives for analysis and discussion in this paper are set out below.

Aim 1: To compare the duration and frequency of service utilisation of both mood disorder (MD) and EUPD patients following presentation to ED with SH or suicide.

Hypothesis 1(H1): There will be a significant positive correlation between EUPD individuals and frequent contact with a greater number of services, utilising services for a longer duration than mood disorder patients. It is expected that, due to the more episodic nature of the SH and suicidal behaviour in MD patients, an inpatient admission followed by maintenance treatment is more likely.

Aim 2: To examine crisis service use associated with MD patients and EUPD patients.

Hypothesis 2 (H2): EUPD patients will be in more frequent contact with services that provide crisis support than MD patients.Though the severity of symptoms may be initially comparable, MD patients tend to stabilise and therefore experience fewer crisis admissions than those with EUPD.

2.0 Methods

2.1 Design

A retrospective, longitudinal design was used to compare MD and EUPD groups of patients.The study aimed to establish which group utilised services more frequently and for a longer duration, and which had more contact with specifically crisis management services.

The patients were divided into the two groups, MD and EUPD patients, as defined by the ICD-10 codes of F30-39 (Mood [affective] disorders) and F60.3 (EUPD) respectively (See Appendix B1) (WHO, 2016).

Dependent variables: To provide a thorough overview of service utilisation, the seven variables used were:

1. Days under South London and the Maudsley NHS Foundation Trust (SLaM).
2. Days spent as an inpatient.
3. Days under the Home Treatment Team (HTT).
4. Number of inpatient admissions.
5. Number of crisis attendances.
6. Days detained under the Mental Health Act (MHA).
7. Number of psychotherapy events attended across three years.

Days under SLaM provided insight into how rapidly an individual was discharged from mental health services following presentation to ED, with a higher number of days indicating more time spent under services. The remaining variables provided a comprehensive overview of the variety of services used: days as an inpatient, number of inpatient admissions and crisis attendances indicated use of higher intensity services whereas days under the HTT reflected use of a lower intensity service. Voluntary and involuntary utilisation are included in the number of psychotherapy events across three years versus days under the MHA.

To address both research aims, comparative analysis across all seven variables was conducted between the MD and EUPD groups, with particular focus on days under the MHA and number of crisis attendances for crisis service use (aim 2).

2.2 Participants and Settings

SLaM supplies mental health service provision for the London boroughs of Croydon, Lambeth, Southwark and Lewisham. The ED's in this area are St Thomas' Hospital, King's College Hospital, Croydon University Hospital and University Hospital Lewisham. The cohort of patients had their first ever ED liaison attendance between 01/04/2013 and 31/03/2016, they were aged 18 or over at initial attendance, the ED liaison notes mentioned either suicide/SH and the patients were under SLaM for at least 6 months during the following 3 years of care.

The inclusion criteria for the two groups were:

1. Age >18 years old and < 65 years old.
2. A mood disorder (F30-39) or EUPD (F60.3) diagnosis as their most recent diagnosis before attendance at ED OR,
3. A mood disorder (F30-39) or EUPD (F60.3) diagnosis as their diagnosis within a year of attendance at ED.

The exclusion criteria for the two groups were:

1. Any ICD-10 coded diagnosis that did not fit in the categories of a mood disorder (F30-39) or EUPD (F60.3).
2. Patients who had a date of death recorded within the timeframe of the datasheet.
3. Patients that had their diagnosis changed between the two disorders or individuals diagnosed with both a personality and mood disorder.

The original group was composed of 925 patients, with 594 individuals excluded via the above criteria. Thus the final cohort sample was 331 patients. These patients were split into MD patients (57.8%, $N = 191$) and EUPD patients (42.2%, $N = 140$). Within the sample,

69.8% (*N* = 231) were female and 29.6% (*N* = 98) were male, with 0.6% (*N* = 2) with an unspecified or other gender. The ethnicity distribution was 69.5% White British/Irish/Other, 4.2% Mixed race, 2.4% Asian/Asian British, 14.0% Black/Black British and 10.1% other ethnic groups. Individuals that had a diagnosis of interest and other comorbid diagnoses in other diagnostic categories were not explicitly excluded but considered only in regards to the diagnoses of interest (F30-39 or F60.3). Based on an anticipated moderate effect size, the power calculation estimated that each group's minimum sample size should be 51 participants.

2.3 Data sources

The database used in this study linked the Electronic Patient Records (EPR) and Hospital Episode Statistics (HES) data with the Clinical Records Interactive Search system (CRIS) and covers the years 2009-2016. Data extraction was performed using a combination of HES ED data and EPR records of referrals to ED-based mental health liaison services in South London. CRIS was used to identify free text entries made by mental health liaison teams or ED records in the SLaM EPR. Any free text entries that contained keywords related to SH or suicidality were extracted, read and coded to establish the act of SH and type of SH present in each attendance.A detailed description of the origin of the dataset and validation of the original sample is provided elsewhere (Polling et al., 2015).

2.4 Procedure

For analysis, all participants from the original database that did not fit the inclusion criteria were removed. The diagnosis within one year inclusion criteria aimed to act as a buffer for individuals who may not have received accurate clinical diagnoses on entry to SLaM services, likely in the context of ED presentation (Taggart et al., 2006). Then all patients that had passed away within the timeframe of the datasheet were excluded for analysis. This was due to uncertainty; no variable within the dataset encapsulating whether an individual had died by suicide. Socioeconomic status (SES) was not included as a confounder due to insufficient information available in the database.

2.5 Ethics and Acknowledgements

This research used data accessed with permission from the South London and Maudsley NHS Foundation Trust Clinical Record Interactive Search (CRIS) system. SLaM has used electronic health records (EHR) for all patients since 2006 (Steward et al., 2009). CRIS allows researchers at the NIHR Biomedical Research Centre (BRC) to use SLaM records for research purposes; this system protects patients' anonymity and has passed robust ethical approvals to ensure data security (CRIS, n.d.). This project, (Ref.: 23-037), gained ethical approval to use the CRIS system on 25/04/23. A KHP (Kings' Health Partners) passport was obtained and right of access commenced on 06/12/2023 and ceased on 05/04/2024 (See Appendix B2 for letter). All patient data is anonymised and patients have the right to revoke researchers' access to their records.

2.6 Analysis

Statistical analyses were conducted using IBM SPSS Statistics Version 29. Descriptive analysis was performed to provide an overview of the demographic variables (age at attendance, gender and ethnicity) and the seven service utilisation variables. The assumption of normality was not met for the dependent variables, therefore a non-parametric test to compare the distribution was selected instead of an independent samples t-test. The Mann-Whitney U test (MWU) was conducted to compare the distribution of each of the continuous treatment utilisation variables between the two groups. The standardised difference in medians was calculated via an online effect size calculator using the z-scores (Wilson, 2019). Transformation of the dependent variables was not appropriate as they all indicated counts or durations of specific events and were discrete, non-negative values. Poisson regression may be chosen for analysis when the dependent variables represent count data and equidispersion is present. However, for all dependent variables the variance > mean indicating overdispersion was present in the data (See Appendix C2). To adjust for overdispersion, negative binomial regression was used as an alternative (Gardner et al., 1995). Thus, 14 regression models were conducted yielding the unadjusted incidence rate ratio (IRR) (with diagnosis as a predictor) for each dependent variable, and then for the adjusted IRR with

gender, age and ethnicity added as confounders. A *p* value of <.05 was considered statistically significant.

3.0 Results

3.1 Descriptive Statistics

Demographic variables: Within the overall sample (*N*= 331), there were more females (69.8%) than males (29.6%), and most of the sample (69.5%) identified their ethnicity as White British/Irish. There were more individuals with an MD (*N* =191) than a PD (*N* = 140) with around one third of MD individuals being male (33.0%), compared to one quarter of the EUPD individuals (25.0%). The age range was from 18 to 65 years old, with the mean age at attendance 33.14 (*SD* = 11.55). The mean ages were similar across the two groups, with the MD group slightly older at 34.60 (*SD* = 12.03). Detailed descriptive statistics for the demographic variables are reported in Table 1.

Table 1. Descriptive statistics for Demographic Variables by Diagnostic Group

Variable	MD group (N = 191)	PD group (N= 140)
Age at attendance (years)		
Mean (SD)	34.60 (12.03)	31.20 (10.61)
Range (min-max)	47 (18-65)	46 (18-64)
Gender – N (%)		
Male	63 (33.0)	35 (25.0)
Female	128 (67.0)	103 (73.6)
Other/unspecified	0 (0.0)	2 (1.4)
Ethnicity – N (%)		
White/British/Irish/Other	127 (66.5)	103 (73.6)
Mixed race	5 (2.6)	9 (6.4)

Asian/Asian British	7 (3.7)	1 (0.7)
Black/Black British	31 (16.2)	16 (11.4)
Other ethnic groups	21(11.0)	12 (8.9)

Note: N = Total Sample Size; SD = Standard Deviation.

Service utilisation variables: Seven service utilisation variables were examined; descriptive statistics for these variables are reported in Table 2. The PD group had a higher number of days under SLaM, days as an inpatient, days detained under the MHA, number of inpatient admissions, number of crisis attendances and attendances to psychotherapy events in 3 years. However, the MD group had double the mean number of days under the HTT at 16.35 (*SD* = 26.26) compared to 7.99 (*SD* = 22.81) for the PD group. The sample was highly heterogeneous, with high variability in the data as indicated by the large ranges and standard deviations for each variable.

Table 2. Descriptive statistics for Service Utilisation Variables

Service Utilisation variables	**MD group (N = 191)**			**EUPD group (N= 140)**		
	Mean	Std Dev.	Range (min-max)	Mean	Std Dev.	Range (min-max)
Days under SLaM	548.69	295.03	1096 (0-1096)	672.35	319.55	911 (185-1096)

Days an Inpatient	15.96	58.83	576 (0-576)	20.45	52.62	445(0-445)
Days under HTT	16.35	26.26	159 (0-159)	7.99	22.81	192(0-192)
Days under MHA	5.23	26.84	263 (0-263)	11.17	50.02	420 (0-420)
Number of Inpatient Admissions	0.49	0.97	7 (0-7)	0.92	1.37	5 (0-5)
Number of crisis attendances	1.00	1.59	12 (0-12)	2.28	3.38	21(0-21)
Psychotherapy events in 3 years	6.47	15.34	141 (0-141)	23.06	56.35	369 (0-369)

Note: N = Total Sample Size; SLaM= South London and Maudsley NHS Foundation Trust; HTT = Home Treatment Team. MHA = Mental Health Act; Std Dev. = Standard Deviation; min - max = minimum – maximum.

Parametric assumptions:

Normality of the dependent variables was assessed using the Kolmogorov-Smirnoff (KS) test and the Shapiro-Wilk (SW) tests (Goodman, 1964). All seven service utilisation variables deviated significantly from normal distribution (p = <.001) (See Appendix C1). Histograms, skewness and kurtosis scores all confirmed this: all variables were positively skewed ranging from days under SLaM (.33) to days under the MHA (7.26). Highly leptokurtic distributions were observed for: days as an inpatient (47.51) , days under the HTT (15.06) , days under the MHA (60.13) and crisis attendances (19.03). Excess zeros present across these variables indicate the absence of a particular event, for example if an individual did not spend any days detained under the MHA or under the HTT, rather than missing data. The only variable that

displayed a platykurtic distribution was days under SLaM (= -1.25) (See Appendix C2).Visual inspection of the histograms confirmed the violation of normality. (See Appendix C3).

3.2 Mann-Whitney U Test

Due to violations of normality and equal variance assumptions, the MWU test was conducted to compare the distribution of the service utilisation variables between the two groups.

Table 3. Results of the Mann-Whitney U test comparing MD (N= 191) and EUPD groups (N= 140)

Service utilisation variables	Mann-Whitney U test statistic	Z score	Sig.	Standardised difference in medians	95% CI
Days under SLaM	107010.50	-3.47	<.001	0.38	[0.16 0.60]
Days an Inpatient	12214.00	-2.04	.041	0.23	[0.01 0.44]
Days under HTT	10660.50	-4.10	<.001	0.45	[0.23 0.67]
Days under MHA	12392.00	-2.54	.011	0.28	[0.06 0.50]
Number of Inpatient Admissions	11663.00	-2.76	.006	0.30	[0.09 0.52]
Number of crisis attendances	10212.50	-4.25	<.001	0.47	[0.25 0.69]
Psychotherapy events in 3 years	10948.00	-3.42	<.001	0.38	[0.16 0.60]

Note: CI = Confidence Interval.

The results (Table 3) showed that the EUPD group had significantly higher utilisation across all services compared to the MD group. Specifically, EUPD patients had a significantly higher number of days under SLaM (z= 3.47, p = <.001), days under the HTT (z= 4.10, p = <.001), had a greater number of inpatient admissions (z= 2.76, p = <.001), crisis attendances (z = 4.25, p = <.001) and accessed more psychotherapy events in 3 years (z = 3.42, p = <.001). Similarly, EUPD patients had a significantly higher number of days under the MHA recorded (z = 2.54, p = .011). Effect sizes ranged from 0.23 to 0.47, indicating small to moderate practical significance. The EUPD group did spend significantly more time as an inpatient than the MD group (z = 2.04, p = .041) with the smallest effect size (d = 0.23) suggesting a lower practical significance than the other variables. These results support both H1 and H2, indicating that the EUPD group used services more extensively and were in more frequent contact with crisis support services than the MD group.

3.3 - Negative binomial regression

Negative binomial regression analysis (Table 4) was conducted to examine diagnosis and service utilisation, adjusting for age, gender and ethnicity.

Overall, the MD group spent 19% fewer days under SLaM compared to the EUPD group (adjusted IRR = 0.81, 95% CI [0.72, 0.91], p <.001). Despite fewer days under SLaM, the MD group spent 116% more days under the HTT compared to EUPD patients (adjusted IRR = 2.16, 95% CI [1.06, 4.40], p =.034). For days under the MHA, the unadjusted IRR was 0.47, suggesting that MD patients spent 53% fewer days detained under the MHA than EUPD individuals though this was not statistically significant at the unadjusted level (adjusted IRR = 0.47, 95% CI [0.13, 1.7], p =.249). However, after adjusting for confounders, the IRR decreased to 0.24 suggesting that MD individuals had 76% fewer days under the MHA compared to EUPD patients (adjusted IRR = 0.24, 95% CI [0.09, 0.70], p =.009). This result suggested that, with confounders accounted for, there is a significant association between a diagnosis of EUPD and more days spent detained under the MHA compared to MD patients.

As hypothesised, a diagnosis of EUPD was significantly associated with more frequent use of intensive services. Using the reciprocal of the IRR, the results indicate that EUPD patients had 96% more inpatient admissions (1/0.51 = 1.96 -1*100) (adjusted IRR = 0.51, 95% CI [0.35, 0.74], p <.001) and number of crisis attendances (adjusted IRR = 0.51, 95% CI [0.37, 0.69], p <.001) than the MD group. The MD group also attended 75% fewer psychotherapy events in three years compared to the EUPD group (adjusted IRR= 0.25, 95% CI [0.15, 0.43] p<.011).

Table 4. Negative Binomial Regression Model for MD group versus EUPD group predicting Treatment Utilisation; confounders added for adjustment were age at attendance, gender, and ethnicity.

Service utilisation variables	Unadjusted IRR	95% CI for unadjusted IRR		Sig.	Adjusted IRR	95% CI for adjusted IRR		Sig.
		Lower	Upper			Lower	Upper	
Days under SLaM	.82	.73	.92	<.001	.81	.72	.91	<.001
Days an Inpatient	.78	.37	1.63	.510	.55	.26	1.16	.115
Days under HTT	2.05	1.05	3.99	.036	2.16	1.06	4.40	.034
Days under MHA	.47	.13	1.7	.249	.24	.09	.70	.009
Number of Inpatient Admissions	.53	.37	.76	<.001	.51	.35	.74	<.001
Number of crisis attendances	.44	.32	.59	<.001	.51	.37	.69	<.001
Psychotherapy events in 3 years	.28	.17	.48	<.001	.25	.15	.43	<.001

Note: IRR = Incidence Rate Ratio.

Finally, days as an inpatient was the only service utilisation indicator to show no statistically significant association with diagnosis even after adjustment for confounders (adjusted IRR = 0.55, 95% CI [0.26, 1.16], p = .115). These results overall validate both hypotheses, with EUPD patients spending a longer time in a variety of services and utilising more crisis services than MD patients with only days as an inpatient as a non-significant finding.

4.0 Discussion

The present study compared patients presenting to ED with SH or suicidal behaviours, diagnosed with either MD or EUPD, differentiating them by mental health service utilisation.

The results support several conclusions: EUPD patients utilised a greater variety of mental health service provision more frequently than MD patients following presentation to ED and spent a greater number of days under SLaM. They had significantly more inpatient admissions, crisis attendances and days under the MHA, and attended more psychotherapy events across three years whereas MD patients spent significantly more time under the care of the HTT than EUPD patients.

These findings corroborate hypothesis 1; EUPD patients consistently show higher mental health service utilisation than MD patients (Connor et al., 2002; Meuldijk et al., 2017). This is consistent with the results from Horz and colleagues' MSAD and Bender's CLPDS and provides additional detail on the types of and overall time spent under services. EUPD patients' greater duration of contact with services is highlighted by the days under SLaM. This may reflect healthcare professionals' ability to manage MDs outside of SLaM services in a primary care setting. The results also showed that MD patients spent 116% more days under the HTT than EUPD patients. Whilst this may appear to reflect a crisis which can be managed in a person's own home suggesting a less severely ill patient, it is important to recognise that HTTs across SLaM vary widely in structure. For example, Southwark HTTs accepted referrals directly from primary care (from 2008-2013) whilst Croydon did not (Tulloch et al., 2014). Greater use of HTTs for MD patients is consistent with fewer inpatient admissions, especially the Crisis Resolution HTT (CRHTT) which has been shown to reduce psychiatric inpatient admissions by up to 40% (Crowley et al., 2023). Differences from MSAD and CLPDS likely reflect the lack of a specific HTT variable in those respective studies.

The finding that MD patients attending 75% fewer psychotherapy events compared to EUPD patients may be attributable to a) more readily given pharmacological treatment for

mild/moderate depression therefore removing perceived need for psychotherapies and b) NICE guidelines recommending DBT, MBT or other therapies for EUPD first line (NICE, 2021). Psychotherapy for mood disorders is empirically supported for chronic depression though improved outcomes over pharmacotherapy has not been confirmed. CBT's effectiveness in depression may be overestimated due to publication bias (Cuijpers et al., 2010), so fewer psychotherapy events in MD patients may not indicate poorer long-term outcomes but the definitive causes underlying it must be established.

In line with hypothesis 2, greater crisis service use was present in the EUPD group over the MD group. EUPD patients having 96% more inpatient admissions and crisis attendances than MD patients may be attributable to several factors; due to recurrent impulsive suicidal behaviours, perception of higher suicide risk or possible stigma and negative attitudes of healthcare professionals which drive a repetitive pattern of high intensity, short duration service use. Fruzzetti and colleagues extended Linehan's original biosocial model of EUPD to create the Transactional Model (See Figure 1), emphasising the transactional nature of the relationship between an individual's emotional vulnerability, tendency to maladaptive behaviours, and their experiences of invalidating responses (Fruzzetti et al., 2005). An EUPD individual who is emotionally vulnerable may display a higher likelihood of engaging in impulsive behaviours, making tending to their emotional needs difficult for family or caregivers in a hospital setting. Negative attitudes of healthcare professionals towards EUPD patients is well-documented and multifactorial (Chartonas et al., 2017). Clinicians' stigma towards EUPD patients may be due to the strongly negative 'moral connotations' associated with perceived irresponsible and self-damaging behaviour. However, clinician prejudice has been associated with poorer empathy shown towards these patients, creating a fractious relationship and reaffirming the EUPD individual's own pervasive history of invalidating responses (Lindell-Innes et al., 2023). Thus, the potential for a cycle of emotional dysregulation precipitating the need for high-intensity service intervention is formed, underscoring the patterns of service utilisation highlighted in the present study.

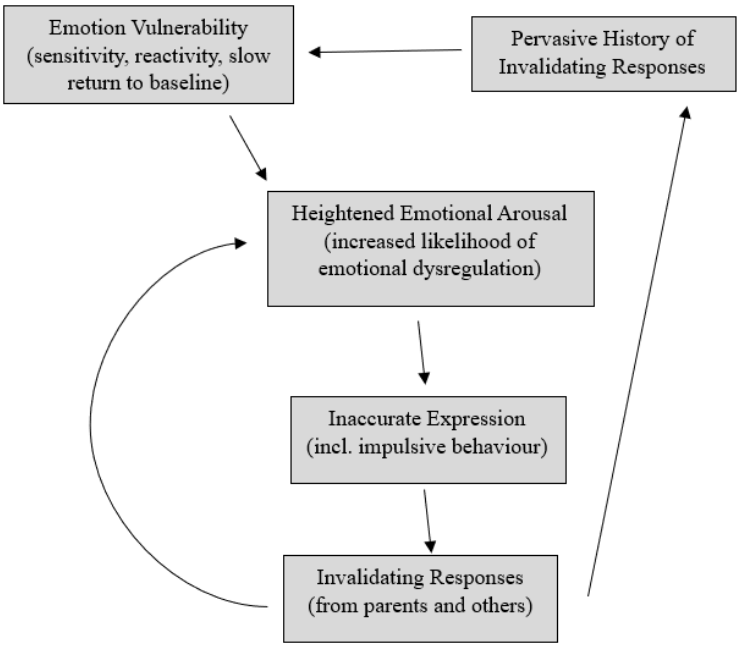

Figure 1. The Transactional Model of emotional vulnerability and invalidating responses in EUPD, (Fruzzetti et al., 2005).

Hospitalisation in EUPD may impair recovery progression (Borschmann et al., 2013). NICE guidelines discourage hospital admission entirely or advise for a short duration only in favour of treatment in an outpatient setting (Paris, 2004; NICE, 2021) as MHA detention may decrease patient autonomy, increase stress and can result in attrition of the relationship between patient and healthcare professional (Eckerstrom et al., 2019). Additionally, MHA detention has also been associated with higher readmission rates, more days spent hospitalised and greater likelihood of dying by suicide (Kallert et al., 2007). This pattern of high crisis service use by EUPD patients is counter-productive for individuals in the long-term.

Therefore, the implementation of different types of crisis management must be considered. One such example is brief admissions (BA) developed as a new nursing intervention by the Dutch Multidisciplinary Guidelines for Personality Disorders (Helleman et al., 2013). BA offer short stabilisation periods (less than three days) and should mitigate dependency or harmful behaviour escalation for distressed patients in an unsettled atmosphere.

Finally, the MWU test indicated that EUPD patients spent significantly more time as an inpatient than the MD group though, once adjusted for confounders, regression found the relationship between diagnosis and this variable to be not statistically significant. This result in conjunction with EUPD patients having a significantly greater number of inpatient admissions would suggest a pattern of many short-duration hospitalisations. This may be due to the emphasis placed on risk management in acutely distressed, emotionally dysregulated EUPD patients wherein hospitalisation is preferable to manage a suicidal crisis (Shaikh et al., 2017). One study indicated that out of a sample of approximately 50,000 EUPD patients monitored over 15 years, the majority (61.2%) of patients had inpatient admissions that lasted 13 days or less (Koch et al., 2019).

4.1 Strengths

The database uniquely included only individuals who exhibited an escalation of an existing mental illness or crisis point in their mental state, facilitating an appropriate comparison between individuals with EUPD or MDs. This created homogeneity within the cohort, establishing a critical point in each individual's treatment trajectory, providing a suitable base from which to explore treatment utilisation. Unlike previous studies, symptom severity at presentation was similar (Bender et al., 2006). Furthermore, this database is compiled from patients in a real-world NHS setting, improving ecological validity (Liu & Demosthenes, 2022).

4.2 Limitations

Whilst the results are informative, some limitations are present in this study. Firstly, the database did not provide sufficient context for the date of death variable (ie. did not specify a cause of death) and the employment variable, which could have been used as a proxy for SES, was missing data. This led to exclusion of individuals with a date of death from the sample for analysis and exclusion of SES as a demographic variable due to uncertainty and lack of reliability. To address these, future subgroup analysis could be performed on the participants who were excluded due to date of death or the dataset could be refined to create an additional variable encapsulating cause of death.

Secondly, comorbidity, or the presence of other adjunctive psychiatric diagnoses in individuals, was not controlled for. This decision was made to avoid the creation of many subgroups that would result in too few participants to effectively analyse and reduced statistical power. However, this introduced the risk of type 1 errors, where the associations between psychiatric diagnosis and service utilisation variables may be overestimated. Co-occurrence of substance use disorders with MDs is associated with a greater clinical severity, as is the presence of both EUPD and MDs in an individual, thus future studies should seek to control for this or perform additional subgroup analysis (Quello et al., 2005).

Lastly, though the dependent variables tested were a comprehensive selection, they lacked precise timing for admissions or psychotherapy events limiting causal inference. To mitigate this, the results of these variables were interpreted with caution; further prospective longitudinal studies could capture event timing more accurately.

4.3 Conclusion and future direction

The present study reinforces existing literature that EUPD patients utilised a greater variety of services for a longer duration than MD patients. Differences in psychotherapy and crisis service use highlights the importance of tailoring treatment pathways to serve the unique needs of each patient group; for example, increasing accessibility EUPD-specific psychotherapy. Increased use of CRHTTs and BAs may be valuable for avoiding more intense psychiatric services so future research should aim to perform RCTs comparing the effectiveness of these with standard care for EUPD patients. Other studies have highlighted that EUPD patients are also higher users of primary healthcare services, so exploration of service use beyond secondary care could be included in future studies (Gamlin et al., 2019). Future secondary subgroup analyses of this dataset to identify and differentiate the mood disorder patients may also be useful; for example, examining BD patients compared to MDD patients.

Overall, the present study enhanced our understanding of service use patterns in EUPD and MD groups following presentation to ED with SH/suicide. These findings reiterate the

complex needs of EUPD patients and highlight the need to improve specialised EUPD services to prevent crises from being managed by hospitalisation alone.

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Appendices

Appendix A

Appendix B1- Definitions of the psychiatric diagnoses of interest.

Mood [affective] disorders group F30-39	Disorders of adult personality and behaviour group F60-69
F30 – Manic episode	F60.3 – Emotionally Unstable Personality Disorder
F31 – Bipolar affective disorder	
F32 – Depressive episode	
F33 – Recurrent depressive disorder	
F34 – Persistent mood [affective] disorders	
F38 – Other mood [affective] disorders	
F39 – Unspecified mood [affective] disorder	

World Health Organisation, ICD-10 (2016).

Appendix B - Ethics Approval

NHS
South London and Maudsley
NHS Foundation Trust

Joint SLaM/IoPPN Research & Development Office, PO05
Institute of Psychiatry, Psychology & Neuroscience (IoPPN)
King's College London
De Crespigny Park
London
SE5 8AF
slam-ioppn.research@kcl.ac.uk

Miss Eleanor Kirman
King's College London
De Crespigny Park
London
SE5 8AF

6th December 2023

Dear Miss Eleanor Kirman,

Letter of Access for research

Project Title: Reading between the lines, how the wording of clinical formulations could influence the care provided to patients with personality disorder
CRIS Reference: 23-037
CRIS Approval Date: 25/04/2023

In accepting this letter, the participating organisation confirms your right of access to conduct research through their organisation for the purpose and on the terms and conditions set out below. This right of access commences on **06/12/2023** and ends on **05/04/2024** unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from **South London and Maudsley NHS Foundation Trust**. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving confirmation from the individual organisation of their agreement to conduct the research.

The information supplied about your role in research in South London and Maudsley NHS Foundation Trust has been reviewed and you do not require an honorary research contract with the organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out. Evidence of checks should be available on request to the organisation.

You are considered to be a legal visitor to the South London and Maudsley NHS Foundation Trust premises. You are not entitled to any form of payment or access to other benefits provided by the organisation or this organisation to employees and this letter does not give rise to any other relationship between you and the organisation, in particular that of an employee.

While undertaking research through South London and Maudsley NHS Foundation Trust you will remain accountable to your employer **King's College London**, but you are required to follow the reasonable instructions of your nominated manager **Matthew Broadbent** in SLaM or those given on their behalf in relation to the terms of this right of access.

Where any third-party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by South London and Maudsley NHS Foundation Trust in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings. You must act in accordance with the organisation's policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with the organisation in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on the organisation's premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment, and premises as is expected of a contract holder and you must act appropriately, responsibly and professionally at all times.

If you have a physical or mental health condition or disability which may affect your research role, and which might require special adjustments to your role, if you have not already done so, you must notify your employer and each organisation prior to commencing your research role at that organisation.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice and the Data Protection Act 2018. Furthermore, you should be aware that under the Act, unauthorised disclosure of information is an offence, and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys, or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times or are able to prove your identity if challenged. Please note that the organisation does not accept responsibility for damage to or loss of personal property.

South London and Maudsley NHS Foundation Trust may revoke this letter and may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of the organisation or if you are convicted of any criminal offence. You must not undertake regulated activity if you are barred from such work. If you are barred from working with adults or children, this letter of access is immediately terminated. Your employer will immediately withdraw you from undertaking this or any other regulated activity and you MUST stop undertaking any regulated activity immediately.

Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

No organisation will indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 2018. Any breach of the Data Protection Act 2018 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in South London and Maudsley NHS Foundation Trust and the SLaM/IoPPN R&D office.

Please note it is your responsibilty to provide advanced notice to the SLaM/IoPPN R&D Office should this Letter of Access require extending.

Yours sincerely,

Lara Awogboro
R&D Administrator
Joint R&D Office of South London and Maudsley NHS Foundation Trust and Institute of Psychiatry, Psychology & Neuroscience

cc: Education Support Team

Appendix C

Appendix C1 - Tests of normality for service utilisation variables by diagnostic group.

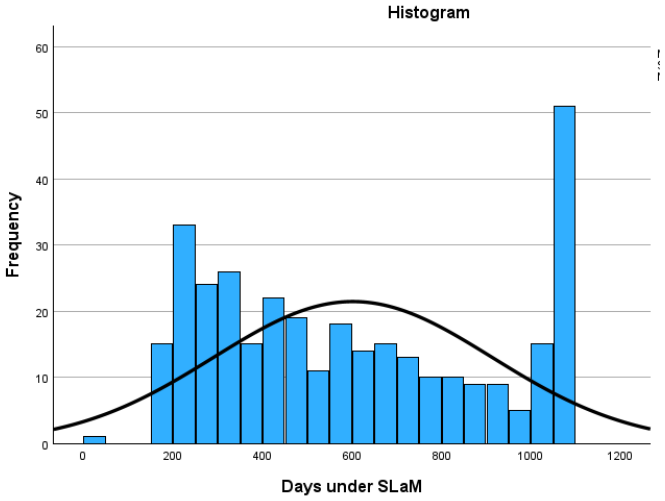
Service Utilisation variables	MD group (N = 191)				PD group (N= 140)			
Tests of normality	Kolmogorov-Smirnoff Test			Shapiro-Wilk Test	Kolmogorov-Smirnoff Test			Shapiro-Wilk Test
	Statistic		df	Sig.	Statistic		df	Sig.
Days under SLaM	.11	.92	191	<.001	.13	.89	140	<.001
Days an Inpatient	.39	.29	191	<.001	.35	.44	140	<.001
Days under HTT	.29	.67	191	<.001	.39	.40	140	<.001
Days under MHA	.48	.20	191	<.001	.42	.24	140	<.001
Number of Inpatient Admissions	.36	.53	191	<.001	.31	.71	140	<.001
Number of crisis attendances	.28	.64	191	<.001	.25	.66	140	<.001
Psychotherapy events in 3 years	.34	.47	191	<.001	.34	.45	140	<.001

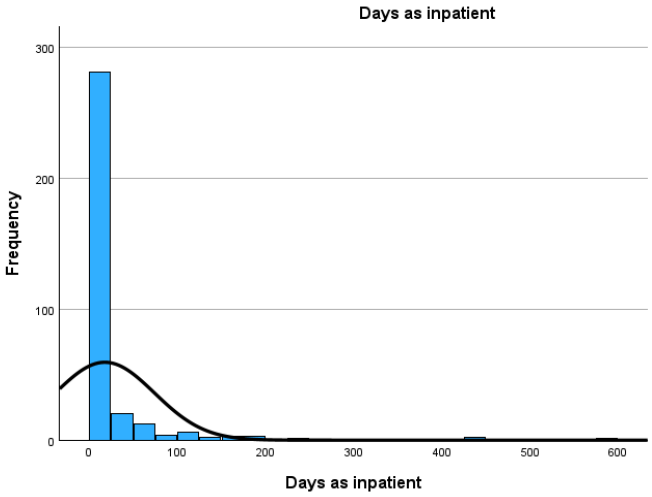
Appendix C2 - Overall descriptives for service utilisation variables including skewness, kurtosis and variance.

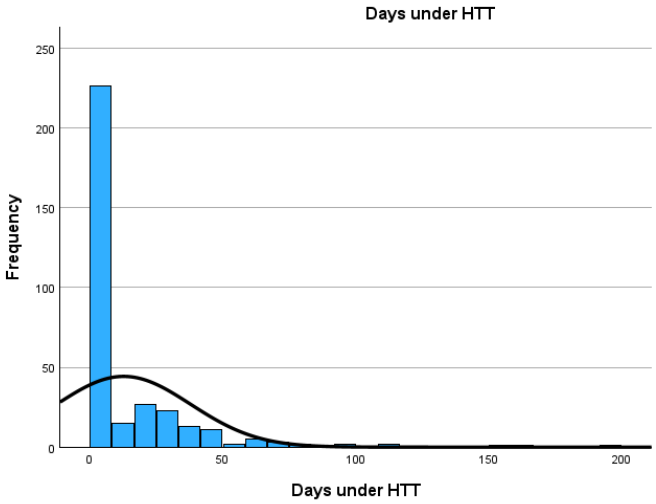
Service Utilisation variables	*N* = 331						
	Mean	Std Dev.	Range (min-max)	IQR	Skewness	Kurtosis	Variance
Days under SLaM	601.84	311.44	1096 (0-1096)	553	.33	-1.25	96992.34
Days an Inpatient	17.89	3.07	576 (0-576)	9	6.15	47.51	3159.07
Days under HTT	12.76	25.14	192 (0-192)	19	3.33	15.06	631.98
Days under MHA	7.78	38.60	420 (0-420)	0	7.26	60.13	1489.70
Number of Inpatient Admissions	.67	1.18	7 (0-7)	1	2.38	6.17	1.39
Number of crisis attendances	1.55	2.60	21 (0-21)	2	3.72	19.03	6.75
Psychotherapy events in 3 years	13.60	39.51	369 (0-369)	10	5.93	42.52	1561.04

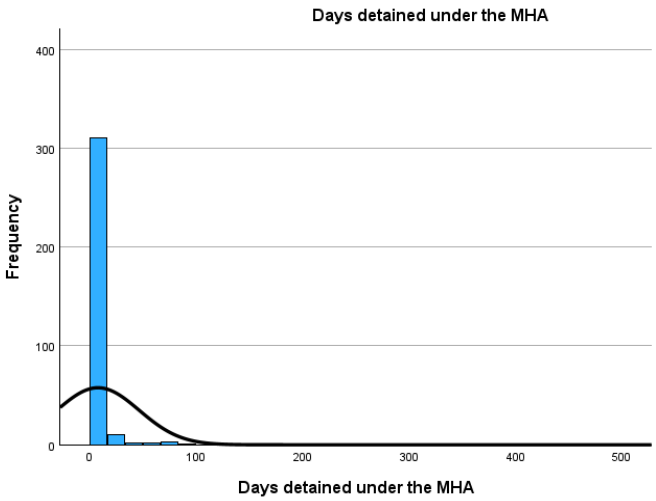
Note: IQR = interquartile range.

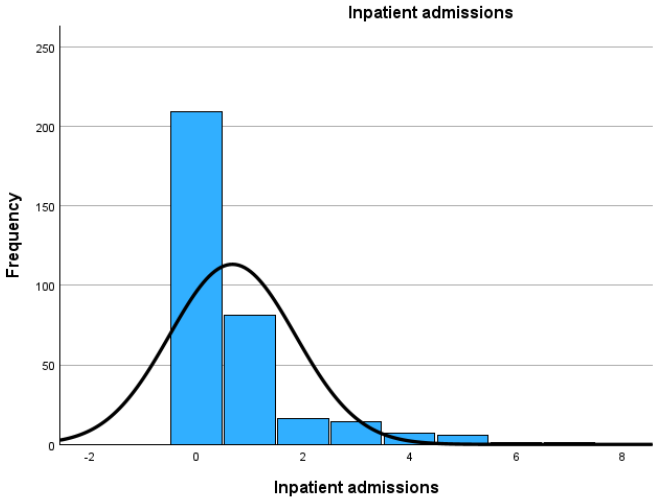
Appendix C3 - Histograms for service utilisation variables including a normal distribution curve.

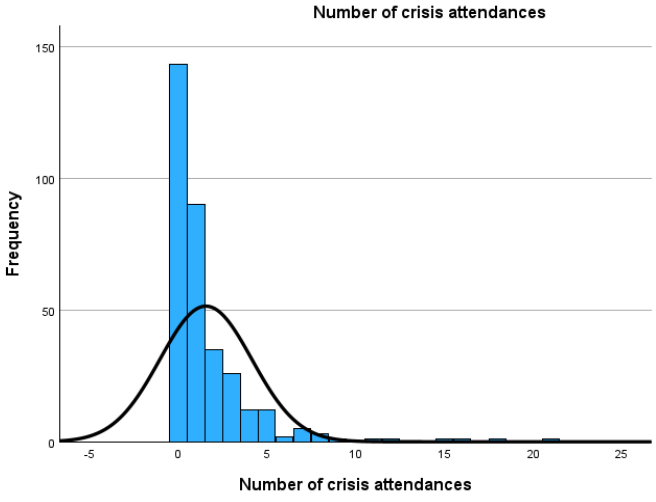


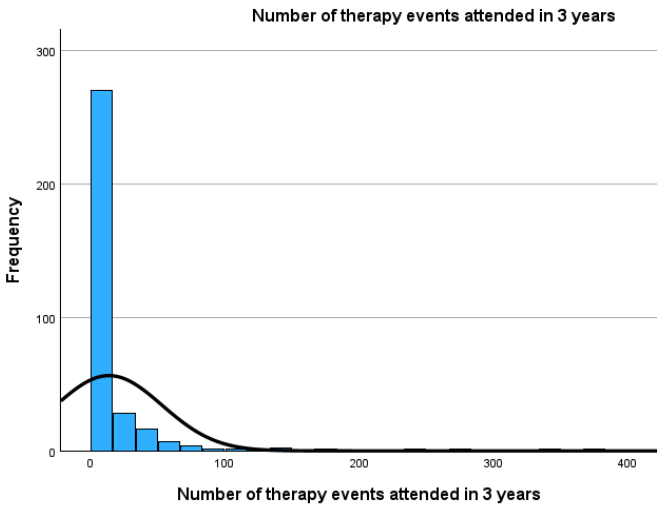





Days detained under the MHA
Frequency
400
300
200
100
0
0
100
200
300
400
500
Days detained under the MHA


Inpatient admissions
Frequency
250
200
150
100
50
0
-2
0
2
4
6
8
Inpatient admissions


Number of crisis attendances
Frequency
150
100
50
0
-5
0
5
10
15
20
25
Number of crisis attendances


Number of therapy events attended in 3 years
Frequency
300
200
100
0
0
100
200
300
400
Number of therapy events attended in 3 years