Demographic, Socioeconomic, and Clinical trends of Dual Diagnosis admissions

by

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Abstract

Demographic, Socioeconomic, and Clinical trends of Dual Diagnosis admissions.

Background – Present literature has identified factors that correlate with increased numbers of hospital admissions in dual diagnosis patients. These generally correlate to young, single, male adults with poor education levels, homelessness, and both financial and legal problems. Nevertheless, across both foreign and local studies, there is still a dearth of literature which has not yet been explored extensively, related to the demographic, socioeconomic, and clinical factors which lead to the admission of dual diagnosis patients.

Aim - To explore possible potential demographic, socioeconomic, and clinical variables leading to admission in Dual Diagnosis Units (DDU) in Malta.

Participants – 568 admissions to the DDUs over a 3-year period between 2018 and 2020, of which 287 were males and 281 were females.

Design – A retrospective document analysis of hospital documentation was conducted enabling the collection of demographic, socioeconomic, and clinical trends which potentially relate to the admission of individuals admitted to the DDUs.

Setting – This study took place at the Dual Diagnosis Units (DDUs) of the local state psychiatric hospital. All data collection conducted by the researcher was performed in a private room within the same hospital setting.

Results – There were several demographic, socioeconomic, and clinical factors which led to the admission of DDU patients. Moreover, there were several significant differences between the male and female DDU patients. FDDU patients had more severe drug dependence, severe clinical, psychological, and social problems, lower socioeconomic and demographic backgrounds, compared to MDDU patients. Furthermore, a considerable number of trends changed over the years of admission, alas this was majorly due to the effects of the COVID-19 pandemic in 2020.

Conclusion – Several factors (single, unemployment, homelessness, poor income, living with parents, childhood abuse, relationship breakup, prostitution, early onset of drug abuse and living in the southern harbour) were identified as prevalent factors of DDU admissions. Additionally, several significant differences were identified between male and female patients at the DDUs. Female patients had more severe drug dependence, psychosocial problems, and came from lower socioeconomic and demographic backgrounds, compared to male patients. Moreover, across the years of admission, several shifts in trends were identified. In the year 2020, an increase in admissions of individuals who were of elder age, foreign, homeless, unemployed, diagnosed with BPAD and PTSD, had a drug dependence of over 20 years, used 3+ grams and over €100 daily, and had a history of suicide/parasuicide was identified, possibly due to the economic and psychosocial effects of the COVID-19 pandemic. This study signifies the importance and need to provide the MDDU and FDDU patients with individualised care. Moreover, better awareness, campaigns and support are needed in the community, to prevent and manage possible contributing factors from early childhood.

Keywords – Dual Diagnosis, Substance Abuse, Admissions, Demographic, Socioeconomic, Clinical, Trends.

Dedications

This study is dedicated to all substance abusers who fall victim to the monster that is addiction, as at the root of all addiction is pain.

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List of Abbreviations

Abbreviation	Explanation
ADHD	Attention Deficit Hyperactivity Disorder
BPAD	Bipolar Affective Disorder
CAPES	Child & Adolescent Psychiatric Emergency Services
CEO	Chief Executive Officer
CINAHL	Cumulative Index to Nursing and Allied Health Literature
COVID-19	Coronavirus Disease
DD	Dual Diagnosis
DDD	Dual Diagnosis Disorder
DDU	Dual Diagnosis Unit
DSM-V	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
E	Expected Count
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
EU-SILC	European Union Statistics on Income and Living Conditions
FDDU	Female Dual Diagnosis Unit
FREC	Faculty Research and Ethics Committee
HIV	Human Immunodeficiency Virus
IVDU	Intra-Venous Drug Use
LD	Learning Disability
MCH	Mount Carmel Hospital
MDDU	Male Dual Diagnosis Unit
MDMA	MethyleneDioxyMethAmphetamine
MW8B	Male Ward 8B
n	Number of Individuals
NIDA	National Institute on Drug Abuse

NIMH	National Institute of Mental Health
NSO	National Statistics Office
O	Observed Count
p	Level of Significance
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta Analyses
PTSD	Post-Traumatic Stress Disorder
SA	Substance Abuse
SAD	Substance Abuse Disorder
SAMSA	Substance Abuse and Mental Health Services Administration
SPSS	Statistical Package for the Social Sciences
UNGASS	United Nations General Assembly Special Session
UNHCR	United Nations High Commissioner for Refugees
UNODC	United Nations Office on Drugs and Crime
$\chi 2$	Chi-Square Test Statistic

Chapter 1

Introduction

1 Introduction

1.1 Background Information

The term dual diagnosis (DD) implies to the co-existence of an addictive disorder (or substance abuse disorder) comorbid with a minimum of one other psychiatric disorder (Szerman et al., 2013) which is becoming increasingly prevalent across the world (Castaño Pérez et al., 2017; Sepehrmanesh et al., 2014). Moreover, substance abuse disorder (SAD) is a chronic, relapsing condition characterized by compulsive drug use (NIDA, 2019).

This research study reports that in Malta, between 2018 and 2020, there have been 568 admissions of DD patients to the psychiatric inpatient service at Mount Carmel Hospital (MCH), namely the Male Dual Diagnosis Unit (MDDU) and Female Dual Diagnosis Unit (FDDU). Both Dual Diagnosis Units (DDUs) cater for patients aged 18 and over, with a SAD or DD disorder (DDD) who warrant admission. The MDDU has an 8-bed capacity which caters for males, whereas the FDDU has a 10-bed capacity which caters for females. Both DDUs are staffed with psychiatric nurses, general nurses, and health care assistants. Additionally, both units share the same multidisciplinary team which consists of a specialised substance abuse medical team, a psychologist, social worker, and occupational therapists.

1.2 Background literature

Present literature has identified factors that correlate with increased numbers of hospital admissions and relapses in DD patients (Castaño Pérez et al., 2017; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014). These factors are generally correlated with young, single, male adults who have poor education levels, are homeless, and have both financial and legal problems (Cantor-Graae et al., 2001; Drake & Brunette, 1998). Nevertheless, even though foreign literature about DD and its correlates are plentiful, locally there is a scarcity of literature and studies about DD individuals. Locally, potential contributing factors, gender differences and trends across the years, which may be leading to the admissions of DD patients have not been studied to a great extent. Moreover, most studies have only used small sample sizes (Kavanagh et al., 2003) and have not explored gender differences (Brunette & Drake, 1997; Comtois & Reis, 1995; DiNitto et al., 2002; Jerrell & Ridgely, 1995; Mowbray et al., 1997), thus leaving the possibility that certain contributing factors and trends leading up to admission may have been overlooked. Additionally, studies about gender differences are divided, as studies have either not identified

any sociodemographic and clinical differences between genders (Comtois & Ries, 1995; Jerrell & Ridgely, 1995) or only identified isolated or lacklustre differences. Literature reports that DD females are more likely to have their own residence (Weistreich et al., 1997), more children (Brunette & Drake, 1997; Mowbray et al., 1997), be younger than age 34 (Mowbray et al., 1997), have higher incidences of mood and anxiety disorders, and experience more emotional, physical, and sexual trauma compared to DD males (Kessler et al., 1997).

1.3 Reasons for undertaking this Research

My interest in conducting this extensive research study originates from the fact that I worked at MDDU as a psychiatric nurse for six years, where I was in contact with substance abuse (SA) and DD patients on a daily basis. Working for a long period of time with these patients made me more aware and sensitised to various socioeconomic, demographic, and clinical factors that seemed to influence admissions to this unit. Alas, locally there is a scarcity in research which extensively explores the potential contributing factors leading to admission. Moreover, both MDDU and FDDU staff and the multidisciplinary team have generally hypothesized that there are considerable disparities between male and female DD patients. Consequently, this research study will also attempt to address the several gaps in local and international literature, together with examining whether there were any differences in trends across the latest three years of admission (2018-2020).

1.4 Aim and Objectives

The aim of this study is to explore the demographic, socioeconomic and clinical variables of patients at both DDUs, in addition to examining whether there are any factors which vary between the male and female DD patients in Malta. Furthermore, the study will explore whether there were any trends in admissions to the DDUs between 2018 and 2020. Consequently, this study will attempt to give a clear picture regarding which variables are potential contributing factors that may be leading to the admissions of both males and females at the DDUs.

1.5 Method

Data was collected through archival research and document analysis of admission record sheets available at the medical records of MCH through the use of intermediaries. It is important to

note that the author aimed to target all 661 admissions to both DDUs between 2018 and 2020, however due to some files being unobtainable, the total number of admissions stood at 568. The author then collected data to determine whether the admissions of DDU patients are influenced by demographic, socioeconomic, and clinical variables. Moreover, the author determined whether there were any significant differences between genders, in addition to whether there were any changes in the number of admissions and trends across the three years of admission.

1.6 Conclusion

The layout of the following chapters of this research study are as follows:

The following sector, Chapter 2 presents a critical appraisal of the relevant literature. This chapter also illustrates a description of the search strategy used to identify and appraise the prevailing research in context to the demographic, socioeconomic and clinical trends of dual diagnosis admissions. Chapter 3 presents a description of the methodology employed. The various stages of this chapter include the aim and objectives of the study, the research design, sample population, data collection and analyses, research tools, validity, and reliability, together with relevant ethical issues. Moreover, Chapter 4 presents the findings of the data collection following data analysis, while Chapter 5 attempts to present a critical discussion of the findings compared with present literature, together with the strengths and weaknesses of this study. Ultimately, Chapter 6 concludes this dissertation by providing a summary of the findings, together with recommendations which stem out from this study.

Chapter 2

Literature Review

2 Literature Review

2.1 Introduction

This chapter aims to present a critical appraisal of the relevant literature. Moreover, this chapter illustrates a description of the search strategy used to identify and appraise the prevailing research in context to the demographic, socioeconomic and clinical trends of the DDUs. This was done by performing a thorough literature search of the electronic database of relevant articles. To guarantee that a systematic description of all steps of the process was carried out, the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) statement guidelines were used and is depicted using a four-phase flow diagram (Figure 2.1). This chapter also focuses on providing a discussion and analysis of the research studies incorporated in this review. Additionally, this chapter presents the research questions and the process of screening of the literature and data selection of the chosen articles. The present study also provides a critical appraisal which addresses the main methodological issues in context to the trends which have emerged from the available literature. The consequent section presents details regarding the research question of this study.

2.2 The Research Question

This study aims to explore the potential promoters, risk factors and trends which relate to the admissions of adults to the DDUs between 2018 and 2020 at the state psychiatric hospital. Moreover, a hypothesis this study explores is whether demographic, socioeconomic, and clinical variables of DD patients vary between the male and female Dual Diagnosis Units in Malta. All reviewed studies retrieved from the literature search examine variables and trends related to patients suffering from dual diagnosis or substance abuse disorders. The following section illustrates the process of how the literature search was conducted.

2.3 The Literature Search

The literature search was conducted through several databases to yield as many relevant studies as possible. The databases were accessed through the EBSCOhost database library and HyDi database. The literature search was performed through the following databases: Academic Search Ultimate, APA PsycINFO, CINAHL Complete, Medline Complete, Cochrane Central Register of Controlled Trials and AgeLine. In order to obtain the most recent relevant articles,

the only search limiters applied were academic journal articles in English language covering the period from the year 2000 till 2020.

The literature search presented a substantial number of studies which were relevant to the potential trends in dual diagnosis patients being admitted to dual diagnosis units. The present researcher used keywords as focus points to guide a focused search to obtain articles relevant to the demographic and socio-economic variables of dual diagnosis patients admitted to dual diagnosis units. The keywords and search terms were as follows: *dual diagnosis, substance abuse, demographic, socioeconomic, clinical, correlates, trends, variables, characteristics, factors, psychiatric, inpatient, hospitalised, admission.*

The subsequent section provides details regarding the criteria for inclusion and exclusion pertinent to the research question of this study.

2.3.1 Inclusion and Exclusion criteria

The Inclusion criteria:

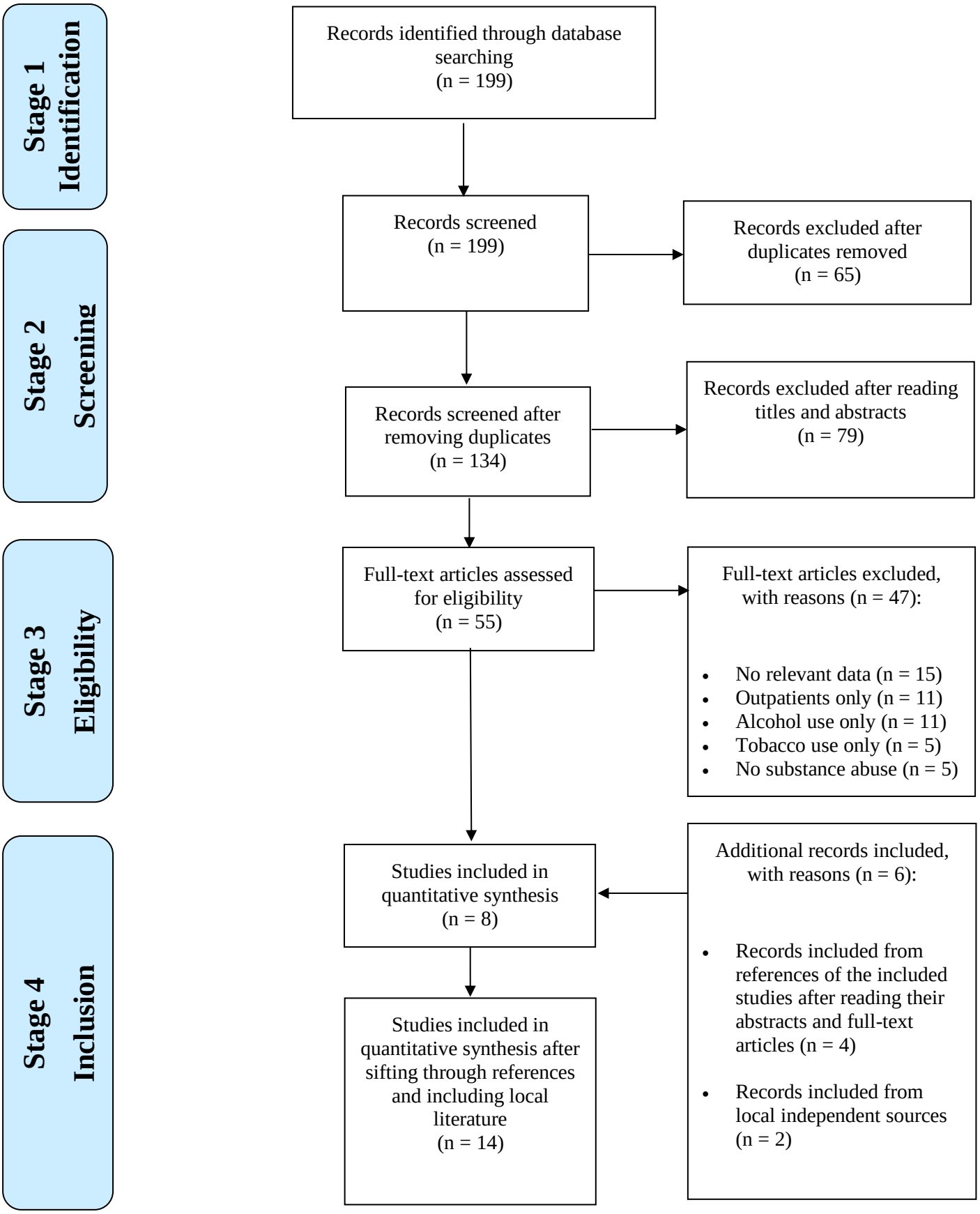
- Any peer-reviewed journals or locally published statistics from the year 2000 to 2020, which included data relevant to the leading causes for admission in hospitalised adult substance abusers and/or dual diagnosis inpatients.

The Exclusion criteria:

- Studies which were not published during the year 2000-2020.
- Studies which were not peer-reviewed or local publishes statistics.
- Studies which did not include adult inpatient substance abusers and/or dual diagnosis.
- Studies which did not contain demographic or socioeconomic data relevant to the leading causes for admission in dual diagnosis inpatients.
- Studies which focused solely on tobacco dependence or alcohol dependence only as the main substance dependence.

The process and identification of potentially relevant articles will be explained and illustrated in the PRISMA flow diagram (Figure 2.1) below.

Figure 2.1: PRISMA Flow Diagram describing the Literature Search.



2.3.2 PRISMA Stages

Stage 1: Identification

The initial database search yielded a total of (*n=199)* potentially relevant articles from their respective databases (*Academic Search Ultimate, APA PsycINFO, CINAHL Complete, Cochrane Central Register of Controlled Trials and AgeLine, Medline Complete,*).

Stage 2: Screening

All potentially relevant articles (*n=199)* were exported from their respective databases and inputted into a bibliographic software package called 'RefWorks'. These articles were then screened for duplicates through the RefWorks article duplicate remover tool, a process which identified 65 duplicate articles, returning a total of (*n=134*) potentially relevant articles. Once the duplicate articles were removed, the potentially relevant articles were screened via perusing the titles and abstracts. Subsequently, article titles which were ambiguous had their abstracts reviewed and articles which had no relevant context to the research question were removed. This process resulted in the exclusion of 79 articles, resulting in (*n=55*) possibly relevant articles.

Stage 3: Eligibility

The full-text articles of these 55 studies were thoroughly assessed for eligibility, resulting in another (*n=47*) articles which were excluded from the literature search. The present researcher identified that from the 47 excluded articles, 15 produced no relevant outcome related to the demographic, socioeconomic or clinical trends, 11 yielded data only relevant to outpatient services, 11 focused only on alcohol dependence, 5 only examined the effects of tobacco use and another 5 did not report data on at least one type of psychoactive substance.

Stage 4: Inclusion

This process produced a total of (*n=8*) articles which were relevant to the research question. Nevertheless, the researcher felt that to maximise the literature search to its outmost, further relevant articles were identified by manually sifting through the reference list of the identified eligible studies. This practice is identified as the term 'references of references' (Colavizza,

Romanello, & Kaplan, 2017) and this practice yielded another (*n*=4) relevant articles. Additionally, the researcher also included (*n=2*) local independent national audits from the latest locally published national psychiatric and drug audits. Furthermore, a hand-searching of journals available at the Dual Diagnosis Unit did not result in yielding additional studies for review. The process above included another (*n*=6) studies, yielding a total of (*n=14)* relevant studies. The researcher noted that a single study, (Mowbray et al., 1997) yielded from sifting through the reference, was dated before the eligible year 2000-2020 criterion. Consequently, the researcher carried out another search for the previous five years (1995-1999) to identify whether there were any better articles. The extended search did not yield any better relevant articles apart from Mowbray et al., (1997). Consequently, the researcher decided to make an exception to include this study as it still contained extensive data relevant to the research question, had a large sample size and was still referenced by recent studies which were also included in the literature (DiNitto et al., 2002; Temmingh et al., 2020).

The consequent section illustrates a table (Table 2.1) with all relevant articles identified from the literature search. Additionally, the table will present the author, title of the study, and location, followed by the method and sample size, the data collection tool, and the main concise findings.

2.4 The Literature Review

The following section illustrates a table (Table 2.1) with all the relevant articles identified from the literature search.

Table 2.1: Description of studies included in the Literature Review.

No.	Authors, Publication Year, Study Title, Place of Study, Year of Study	Methodology	Sample Size	Data collection tools and Data analysis	Main Findings
1.	**Cachia (2020)** Combatting Stigma and Discrimination: Empowering stakeholders and tackling challenges together" - Annual Report 2019. Location: Malta	A national published annual report covering an overview of the mental health scenario in the local state psychiatric hospital.	*n = 117*	The office of the commissioner collected data through face-to-face interviews, structured questionnaires, and telephone interviews.	From 117-substance abuse involuntary admissions, 83 had a primary diagnosis of drug abuse, 22 alcohol abuse and 12 had an alcohol and drug abuse.
2.	**Carmona-Huerta et al., (2020)** *Use of Psychoactive Substances and Sociodemographic Characteristics in a Hospitalized Population with Mental Disorders in a Mid-Income Country* Location: Mexico	An analytical, retrospective, cross-sectional study of substance abuse admissions during the year 2018 from patients' discharged records.	*n = 268*	Retrospective document analysis of sociodemographic data, diagnoses, and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST 2.0) along with toxicological results. Data was analysed using SPSS version 25 and RStudio.	Population consisted of 61.6% males and 38.4% females. 86.6% of the population were unemployed, 67.9% were single, mean age of admission was 36 years and had an average 8 years of schooling (equivalent to secondary level/high school). Schizophrenia (42%) was the most common psychiatric illness, followed by substance-induced psychosis (22%), bipolar disorder (17.9%). Cannabis (21.8%) and methamphetamines (10.7%) were the most common substances.
3.	**Castaño Pérez et al., (2017)** *Sociodemographic and clinical factors associated with dual disorders in a psychiatric hospital.* Location: Colombia	An observational, retrospective, cross-sectional study of physical and electronic medical records of 201 patients admitted in a psychiatric hospital between January and June 2013, of which 91 had a dual diagnosis disorder.	*n = 91*	A retrospective descriptive analysis of standardized fields which included socio-demographic data and clinical data. Additionally, chi-square test or Fisher's exact test were used to compare qualitative variables between dual and non-dual diagnosis patients. Data was analysed using SPSS version 22.	The dual diagnosis group consisted of 77 males (84.6%) and 14 females (15.4%). The most common age group was age 18-24 (47.3%). 89% completed senior high school (secondary level), 51.6% were unemployed, 83.5% were single, only 8.8% were married and 89% had a low socioeconomic level. The most common psychiatric disorders in dual diagnosis patients were Schizophrenia and other psychoses (49.5%), mood disorders (40.7%), neurosis and personality disorders (7.6%), learning disabilities (2.2%).
4.	**Charzynska et al., (2011)** *Comorbidity patterns in dual diagnosis across seven European sites.*	Psychiatry-led, observational cross-sectional study of participants from inpatient psychiatric wards and specialized dual diagnosis	*n = 352*	Data was collected by trained researchers from participants after a minimum of 48 hours following admission. Data collection	The study reported that there were 67.6% males and 32.4% females. Most common age of patients were between 35-65 (55.9%), followed by 18-34 (44.1%) age group. 76.5% completed secondary level, 83.5% were single and 16.5% were married.

	Location: Europe: 1. Aarhus, Denmark 2. Paris, France 3. Tampere, Finland 4. Dundee, Scotland 5. Warsaw, Poland 6. London, England 7. Cambridge, England	inpatient wards across seven different European sites. Participants had to have a diagnosis of schizophrenia, psychotic disorder, or mood disorder with at least a substance abuse disorder.		tools used were the M.I.N.I (Mini International Neuropsychiatric Interview – a structured psychiatric interview for multi-centre clinical trials and EuropASI (a semi-structured instrument covering medical, employment, support, drug/alcohol use, legal, family/social, and psychiatric data. Data was analysed using chi-square test and univariate analyses.	The most common psychiatric disorder was psychosis (40.3%), followed by depression (23.5%), mood disorders with psychotic features (23.2%) and bipolar disorder (12.9%). The most common substances were Cannabis (35.8%), heroin (13.6%), tranquilizers (12.5%), stimulants (12.2%), cocaine (9.7%) and hallucinogens (5.1%). Alcohol comorbidity was reported in 74.1% of all participants.
5.	**DiNitto et al., (2002)** *Gender Differences in Dually-Diagnosed Clients Receiving Chemical Dependency Treatment.* Location: Texas, United States	A mental-health led longitudinal survey study of 97 clients who entered a Minnesota-Model inpatient chemical dependency treatment program.	*n = 97*	Data was collected by conducting follow-ups 30, 60, 90 days post-discharge from the inpatient program, along with collaterals from their carers. Data was collecting by using self-reported data from the Addiction Severity Index (ASI), Case Manager Rating Scale (CMRS) along with urine and saliva tests. A post hoc analyses was conducted through effect sizes, phi, or Cramer's V.	47% were males, whereas 53% females. The modal age was 33, while the average duration of education was 11.2 years (secondary education). 41% of the population never married, 52% were unemployed, 67% had a criminal conviction and 55% were on probation. The most common psychiatric illnesses were depression and major depressive disorder (74%), followed by bipolar and schizoaffective disorder (12%), schizophrenia or other psychoses (10%), and PTSD (post-traumatic stress disorder) 3%. The majority (60%) were poly-drug abusers. 16% used cocaine and 18% had an alcohol dependence.
6.	**European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2019** *Malta Country Drug Report 2019* Location: Malta	A national published drug report covering an overview of the drug phenomenon in Malta during the year 2017.	*n = 1778*	A periodic retrospective descriptive report.	Less than one in five individuals who entered local drug treatment were female. Heroin was the most common substance (70%), followed by cocaine (19%) and cannabis (9%). Cocaine is the most common substance amongst patients that are seeking treatment for the first time (44.7%), followed by heroin (35%) and cannabis (20.3%). 86% of cannabis, cocaine (82%) and heroin users (81%) were males.

7.	**Franken et al., (2019)** *A profile of adult acute admissions to Lentegeur Psychiatric Hospital, South Africa.* Location: Cape Town, South Africa	A regional retrospective audit of 573 adult patients involuntarily admitted to an acute adult admission unit in a psychiatric hospital, of which 353 had a substance use disorder.	*n = 353*	A retrospective review of the records of patients. These included clinical interviews, self-reported data, and collateral from their families and data from the referring hospitals. All demographic and clinical analyses was conducted using SPSS software.	From all psychiatric patients, 62% had a substance abuse disorder leading up to admission. The substance abuse group consisted of males (79.6%) compared to females (20.4%), who reported that cannabis was the most commonly used drug (50%), followed by methamphetamines (36%), methaqualone (14%) and heroin (3%). Moreover, 17.5% reported having an alcohol dependence.
8.	**Gavioli et al., (2020)** *Drug use by men admitted to a psychiatric hospital.* Location: Brazil	A cross-sectional and descriptive study carried out in an 80-bedded male drug dependence unit in a psychiatric hospital integrated on 209 male patients.	*n = 209*	Data collection was conducted using structured interviews of sociodemographic, socioeconomic and risk condition variables along with the ASSIST version 3.1. Data was compiled using the SPSS software and statistical analysis was performed using descriptive statistics	51.5% of males were aged between 18-34 years. The median age of males was 34 years. 79% of males were single, 60.7% had children, 51.5% were unemployed and another 51.5% lived in their own home, and 62.3% attended school for less than 8 years. 27.2% were new admissions. The monthly minimum wage in 2016 was R$880 Brazilian Dollars (equivalent to $156 US Dollars), while the median monthly income of the male drug dependence group was double the minimum wage, R$1600 Brazilian Dollars (equivalent to $284 US Dollars).
9.	**Mowbray et al., (1997)** *Characteristics of Dual Diagnosis Patients Admitted to an Urban, Public Psychiatric Hospital: An Examination of Individual, Social, and Community Domains.* Location: Michigan, United States	A longitudinal study was conducted over a one-year period on patients who were admitted to two 30-bed mental illness/chemical dependency units.	*n = 467*	A positive screen for substance abuse based on the ASSIST version 2.1. Sociodemographic, clinical, and socioeconomic data were collected using structured interviews from the Addiction Severity Index (ASI) and The Symptom Checklist-10. Data analysis for continuous data was examined via ANOVA and chi-square test was used for categorical data	The demographics of the 467 participants were: 74.3% males compared to 25.7% females and had a mean age of 33.35. The most common psychiatric disorders were schizophrenia and schizoaffective disorder (28%), followed by personality disorders (26%), organic mood disorders (21%), major affective disorder (14%) and mild affective disorder (15%) (percentages add up to more than 100% because participants could receive more than one diagnosis). Cocaine (37%) was the most common drug, while around one-third were poly-abusers. Alcohol dependence was reported in 46% of the population.

10.	**Mueser et al., (2000)** *Substance Use Disorder in Hospitalized Severely Mentally Ill Psychiatric Patients: Prevalence, Correlates, and Subgroups.* Location: New Hampshire, United States	A medical-led, cross-sectional survey study was conducted, obtaining data from 325 recently admitted patients to a psychiatric hospital. All patients admitted were under an involuntary emergency admission.	*n = 325*	Patients were interviewed using structured tools such as the Structured Clinical Interview for *DSM-III-R* (SCID) and Clinician Rating Scales for alcohol and drug use (CRS). Univariate analyses were conducted using optimal data analysis (ODA) to optimise discrimination without assuming distributional properties of either the predicted or predictor variables.	53% were females compared to 47% males. The mean age was 38.8 and the average years of schooling was 12.1. 55% were never married and 43% were living alone. The most common psychiatric illness was schizophrenia (27%) and schizoaffective disorder (26%) followed by depression (23%) and bipolar disorder (19%). Cannabis was the most abused drug, followed by cocaine. Moreover, alcohol dependence was reported in 51% of the population.
11.	**Ponizovsky et al., (2015)** *Trends in dual diagnosis of severe mental illness and substance use disorders, 1996–2010, Israel.* Location: Israel	A national cross-sectional archival study on 56,774 inpatients aged 15–64 whose first psychiatric hospitalization occurred over a 15-year period between 1996 and 2010.	*n = 5952*	Secondary analysis of data from the National Psychiatric Case Register of the Ministry of Health (NPCR) which is the bank of data of all psychiatric admissions and discharges in Israel. All analyses were performed using the SAS-9.2 software for Windows-2007.	Males (77.5%) compared to females (22.5%) were most common in ages 15-24 (50.7%), followed by 25-44 (43.3%). Moreover, 86.1% were not married (including separated and divorced) and only 14% were married. The most common severe mental illness was schizophrenia and other psychoses (52%) and 38.6% of admissions were involuntary. 21.2% reported a previous suicide attempt within 2 months before admission.
12.	**Rush & Koegl, (2008)** *Prevalence and Profile of People with Co-occurring Mental and Substance Use Disorders Within a Comprehensive Mental Health System.* Location: Ontario, Canada	A sponsored cross-sectional archival study on 9839 participants sampled from specialty tertiary inpatient, specialty outpatient, and community-based mental health programs between 1997 and 2002, of which 370 were inpatients.	*n = 370*	Data collection was conducted using CCAR, a functional assessment tool that collects data with regards to the range of diagnostics and demographic information. These assessments were done by case managers and clinical staff who had received training from the original project team.	Males (64.4%) compared to females (35.6%). 16-24 age group (55.0%) was the most common age of admission, followed by 25-44 years (34.8%), 45-64 (23.6%) and 65+ (14%). Schizophrenia (53.2%) was the most common psychiatric illness reported, followed by a mood disorder (21.6%), personality disorder (16.2%) and anxiety (4.6%). Conversely, 15.6% were reported to not have any comorbid psychiatric illness. Only 13.6% were married, 34.6% completed high school (secondary level), 91.8% were unemployed and 28.7% had legal problems with the criminal justice.

				Data analysis was done using SPSS Version 11.0. Moreover, chi-square and ANOVA procedures for categorical and continuous variables were used. Multivariate analyses were based on multiple logistic regression. Effect sizes (Cohen's d) were calculated and used an effect size cut-off of 0.30, to focus on the significant differences between groups.	
13.	**Sepehrmanesh et al., (2014)** *Comorbidity and Pattern of Substance Use in Hospitalized Psychiatric Patients.* Location: Kashan, Iran	An analytical-cross sectional survey study conducted on 210 patients hospitalised in a psychiatric hospital in the year 2013, of which 77 had a dual diagnosis disorder.	*n = 77*	Data collection was conducted using a structured clinical questionnaire containing socioeconomic, demographic, and clinical information. Moreover, urine samples were taken to determine type of substances used. Data analysis was conducted through SPSS v16 by using descriptive statistics, Fisher exact and Chi-square tests.	88.3% of the dual diagnosis population were males compared to 11.7% females. 77.9% were aged over 30, while only 22.1% were aged under 30. The majority were married (59.7%) while only 28.5% were single, the rest were divorced (10.4%). The majority (67.5%) completed high school/secondary, followed by 28.5% who completed primary level only, 2.6% had a post-secondary education and 1.4% reported to be illiterate. The majority reported to be unemployed (57.1%). The most common drug used was poly-drug abuse (opioids and methamphetamines) 55.8%, followed by opioids (27.2%), methamphetamines (9.1%) and cannabis (7.9%). Furthermore, 77.9% participants reported to have a substance abuse disorder for more than 5 years. The most common psychiatric disorders were having a mood disorders (52.9%) mood and anxiety disorder (14.7%), substance-induced psychosis (11.9%) and psychotic disorders (11.9%).
14.	**Temmingh et al., (2020)** *The prevalence and clinical correlates of substance use disorders in patients with psychotic disorders from an Upper-Middle-Income Country.* Location: South Africa, Cape Town.	An analytical-cross sectional study of 248 dual diagnosis patients suffering from psychotic disorders or mood disorders with psychotic features in two inpatients settings and one outpatient setting.	*n = 248*	Data was collected using The Structured Clinical Interview for DSM-IV (SCID-I) to determine psychiatric and substance use disorders. Moreover, a socio-demographic schedule was used to collect the relevant data.	Males (64.5%) compared to females (35.5%). The most common age group was 18-29 years (49.2%). The mean age was 31.5 years. The majority reported to never be married (79.8%), whereas 13.3% were married or cohabiting, and 6.9% were previously married. Most common education was being schooled for 8-11 years (48%). The majority were unemployed (67.7%) and less than a quarter (23.9%) reported to have ever enrolled in rehabilitation. 67.3% reported to have never been arrested.

				Data analysis was done by secondary analysis of medical database using bivariate logistic regression.	The most common psychiatric disorder was schizophrenia (53.2%), followed by bipolar type 1 disorder (20.6%), schizoaffective disorders (13.3%) and substance-induced psychotic disorders (12.9%). Major depressive disorders and anxiety disorders were prevalent in 20.6% and 13% of participants, respectively. The most common substance used was cannabis (34.3%), followed by methamphetamine (27.4%), methaqualone (10.4%), and cocaine (4.4%). Alcohol dependence was reported in 30.6%, while 22.9% had a poly-drug dependence.

2.4.1 Literature Critique of the relevant studies

Various studies (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Franken et al., 2019; Gavioli et al., 2020; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020) have identified demographic, socioeconomic, and clinical trends leading to admission of dual diagnosis inpatients.

These trends are predisposed by variables such as ***gender*** (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020), ***age*** (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; Franken et al., 2019; Gavioli et al., 2020; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020), ***marital status*** (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020), ***employment status*** (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Gavioli et al., 2020; Mowbray et al., 1997; Rush & Koegl, 2008; Sepehrmanesh et al., 2014), ***mode of admission*** (DiNitto et al., 2002; Gavioli et al., 2020; Mueser et al., 2000; Ponizovsky et al., 2015), ***psychiatric illness*** (Castaño Pérez et al., 2017; Mowbray et al., 1997; Ponizovsky et al., 2015; Sepehrmanesh et al., 2014), ***type of substance used*** (Franken et al., 2019; Mowbray et al., 1997; Mueser et al., 2000; Sepehrmanesh et al., 2014) and ***forensic history and crime*** (DiNitto et al., 2002; Gavioli et al., 2020; Rush & Koegl, 2008; Temmingh et al., 2020). The subsequent section investigates and critiques the above variables and others in order to better understand the correlation of such variables to admissions, thus identifying any associated trends.

2.4.2 Gender differences between dual diagnosis patients

Cachia (2020), in the role of the local mental health commissioner reported that in 2019, admissions of dual diagnosis individuals were more likely to be male (64.4%) as opposed to female (35.6%). These findings were also corroborated by another local study (Grech & Micallef Trigona, 2020) who stated that the psychiatric hospital roughly admitted two male patients (65.7%) for every female patient (34.3%). Moreover, when examining the mode of admission, the majority of involuntary admissions were male DD patients (64.4%) (Cachia. 2020). Furthermore, Cachia (2020) also outlined that admissions of SADs were 3.8 times more common in male patients (77.8%) than females (22.2%). A possible argument is that locally there are considerably more male substance abusers than females, as corroborated by the European Monitoring Centre

for Drugs and Drug Addiction (EMCDDA, 2019) in the Malta Country Drug Report 2019. Moreover, such findings are also in line with the literature included in this study (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020). The (EMCDDA, 2019) reported that in the year 2017, cannabis, cocaine and heroin dependence were predominantly correlated to males (86%, 82% and 81%, respectively). Additionally, less than one in five individuals who entered local drug treatment were female (EMCDDA, 2020).

DiNitto et al., (2002) conducted a longitudinal survey study of 97 clients who entered a Minnesota-Model inpatient chemical dependency treatment program, and reported that gender representations were equally represented, and not male dominated as seen across the literature. A strength of this study was that it was the only study from the selected literature which primarily compared gender differences amongst SA/DD patients. Nevertheless, this study had several limitations and biases such as exaggeration and selective memory since most data was collected through collateral histories given by patients' relatives 30, 60 and 90 days after discharge. Moreover, DiNitto et al., (2002) did not mention whether they gained ethical approval from patients themselves nor from any ethics committee, which may limit the legitimacy of the findings. Moreover, these findings should also be taken with caution since the authors reported to have had a low sample size, however no power analysis was conducted in order to verify this.

DiNitto et al., (2002) reports that females identified more past emotional, physical, and sexual abuse compared to males who reported higher incidences of crime and forensic history. Moreover, prostitution was the only 'crime' which was more prevalent in female patients, whereas alcohol dependence was more prevalent amongst males. These authors also identified that females reported higher incidences of having a family history of addiction, more social support, and more social benefits, when compared to males. With regards to employment, DiNitto et al., (2002) reports that both males and females were mostly unemployed. Conclusively, DiNitto et al., (2002) reports that their study only identified a small number of significant differences between genders, and state that these findings were in line with extant literature (Brunette & Drake, 1997; Comtois & Reis, 1995; Jerrell & Ridgely, 1995; Mowbray et al., 1997; Westreich et al., 1997). Additionally, DiNitto et al., (2002) argue that male and female dual diagnosis inpatients require different treatment strategies to achieve better treatment and care.

2.4.3 Age as a clinical correlation of dual diagnosis

Several studies included in this literature have reported a disparity in the age of admission. Castaño Pérez et al., (2017) studied the sociodemographic and clinical factors of a general psychiatric unit in Colombia amongst patients suffering from dual diagnosis (n=91) by collecting data from secondary sources. After gaining consent from the research ethics committee of the hospital itself, the authors reported that the largest groups consisted of 18-24-year-olds (47.3%) and 24-34-year-olds (31.9%). Additionally, Castaño Pérez et al., (2017) state that the number of admissions were directly associated to a younger age. Nevertheless, these results should be interpreted with caution since Castaño Pérez et al., (2017) had a low sample size (n = 91). In line with the above findings was the study by Temmingh et al., (2020) who conducted an analytical-cross sectional study of 248 DD patients suffering from psychotic disorders or mood disorders with psychotic features in two inpatients settings. Ethical approval was acquired from the Human Research Ethics Committee of the University of Cape Town along with a written consent from all patients. Temmingh et al., (2020) reported that the 18-29 age group consisted of 49.2% of the study population, whereas the 30-44 age group consisted of 39.1%, once again endorsing that a higher frequency of admissions was more prevalent across younger adults.

Conversely, Charzynska et al., (2011) who conducted a psychiatry-led survey study (n=352) after obtaining individual written consent from the participants and also approval from the relevant ethics committees and their study partners, reported that the largest groups admitted consisted of elder adults aged 35-65 (55.9%), followed by 18-34-year-olds (44.1%), and reported a median age of 37.4. A strength of this study was that it collected data from seven different European sites (Aarhus, Paris, Tampere, Dundee, Warsaw, London, and Cambridge) however these results should be interpreted with caution due to geographic variation. Charzynska et al., (2011) had a total sample size of 352 participants across seven different countries, which would result in an average of around only 50 participants per site, which one may argue to be a small sample size and thus a limitation of the study. Moreover, the present researcher noted that the year and duration of the study were never mentioned, hence making it difficult to interpret data in the appropriate time context.

Corroborating these findings, Sepehrmanesh et al., (2014) conducted an analytical cross-sectional study in a psychiatric hospital in Iran on 210 patients of which 77 were diagnosed with a DDD. After gaining ethical consent from the Kashan University of Medical Sciences, the author identified that out of the service users who had been admitted to hospital due to drug dependence, those aged 30+ reported the highest admission rates (78%), as conversely only 22% of the study population were aged less than 30. Studying the same age groups, Mowbray et al., (1997) findings

were not in line with Sepehrmanesh et al., (2014), and stated that the admission rates between both age groups (33 or less, and 34 or more) were almost equal (52.7% and 47.3%, respectively). One may argue that categorising age groups into two could be considered a limitation, since it is too broad and ambiguous, as one cannot deduce which specific age group was most common. Other limitations of Sepehrmanesh et al., (2014) were that it was conducted in one poor socioeconomic region, in addition to having a relatively poor population size (77).

In contrast, Cachia (2020) reported that the most common age group for dual diagnosis inpatients during the year 2019 were aged 30-44 and amounted to 50.4% of DD inpatients, whereas those aged 18-44 accounted for 80.3% of DD admissions. These local findings corroborate similar findings by Ponizovsky et al., (2015) who conducted a national cross-sectional archival study on 56,774 inpatients aged 15–64 whose first psychiatric hospitalization occurred over a 15-year period between 1996 and 2010. From the population sample (n=56774), 4582 had a DDD and another 1370 had a DDD comorbid with alcohol dependence. The authors stated that they did not require approval from the Institutional Review Boards since patients' identification information was redacted and removed from the datasets. Moreover, it stated that their study was partly funded by the Ministry for Immigration Absorption. Nevertheless, Ponizovsky et al., (2015) reported that the largest groups consisted of 25-44-year-olds (47.2%) and 15-24-year-olds (40.5%). In line with the findings from Cachia (2020), 15-44-year-olds represented 87.7% of all admissions. A strength of Ponizovsky et al., (2015) was that it had the largest sample size from the selected literature, in addition to showcasing the trends over a 15-year-period. Gavioli et al., (2020) conducted a study in a male drug dependence unit (n=209) in a psychiatric hospital after gaining consent from the Research Ethics Committee of Faculdade Ingá and reported no significant differences age groups 18-34 and 35-62. Conversely, Rush & Koegl (2008) who conducted a cross-sectional archival study on 370 participants from inpatient speciality programmes between 1997 and 2000 reported an elevated median age of 49.9. Nevertheless, the authors identified that their clinical diagnostic interviews were not sufficient to confirm the criteria for defining co-occurring disorders, which may be considered as a significant limitation of the study. Additionally, their study received funding from the from the Ontario 'Ministry of Health and Long-Term Care to the Centre for Addiction and Mental Health', which may limit the credibility of the study.

2.4.4 The prevalence of co-occurring disorders in dual diagnosis

A well-studied phenomenon is the link between substance abuse disorders and mental illness which is also termed as "dual diagnosis", "co-occurring disorder" or "comorbid disorder" (Regier et al., 1990; Substance Abuse and Mental Health Services Administration (SAMSA), 2006;

Watkins et al., 2004). The EMCDDA (2015) estimates that approximately 50% of individuals who suffer from substance abuse disorder are also diagnosed with at least one mental health illness.

Castaño Pérez et al., (2017) report that the most predominant psychiatric disorders in DD patients are schizophrenia and other psychoses (49.5%), followed by mood disorders (40.7%) and neurosis/personality disorders (7.6%). This significant predominance in schizophrenia is in line with other studies (Mowbray et al., 1997 and Ponizovsky et al., 2015). Moreover, a strength of Castaño Pérez et al., (2017) was that the hospital looked over the standardised fields to see that everything was being filled out, thus reducing missing data and improving data accuracy. Conversely, the present researcher noted that Castaño Pérez et al., (2017) did not report the type of substances used in their study, which may be considered a limitation since it was not possible to study the correlation between the type of psychiatric illness and substance dependence. Possibly, this also meant that an unknown number of patients had an alcohol dependence disorder and not a drug dependence disorder.

Conversely, Sepehrmanesh et al., (2014) stated that mood disorder (52.9%) and schizophrenia (23.8%) were the most prevalent psychiatric illness amongst the DD group. Intriguingly, Sepehrmanesh et al., (2014) reports that 18.1% of participants were also diagnosed with an additional psychiatric diagnosis (triple diagnosis), and reports that half the individuals who were diagnosed with schizophrenia or other psychoses (23.8%) were drug induced. The EMCDDA (2016), states that there is a direct and significant correlation between psychosis and heavy use of cocaine and cannabis. Additionally, 85% of individuals having a cocaine dependence experienced drug-induced psychosis, while chronic use of cannabis also doubled the risk of psychosis (EMCDDA, 2016).

2.4.5 Primary drug dependence, poly-drug abuse, and alcohol comorbidity

Several studies have reported disparities between the primary drug of choice, and the reasons will be explained below:

Mowbray et al., (1997) conducted a study (n=467) over a one-year period on patients who were admitted to two 30-bed mental illness/chemical dependency units and reported that the most prevalent drug dependence was cocaine (37%), followed by marijuana (30%), and heroin (6.7%). A limitation was that no ethical approval was documented and that their study was financed by a grant given by the National Institute of Mental Health (NIMH). Remarkably, a comorbidity of alcohol dependence was reported amongst 46% of the participants, which was higher than cocaine. Nevertheless, one may argue that since alcohol is legal, it is more accessible than illicit substances

such as cocaine and heroin. This however was not always the case, as reported by the study of Sepehrmanesh et al., (2014) which took place in Iran, where the official religion is Islam and the consumption of alcohol is forbidden, thus making access to alcohol improbable, which could be considered a limitation of the study.

Mowbray et al., (1997) stated that 64.6% reported poly-drug abuse (more than one drug of choice), and was in line with Sepehrmanesh et al., (2014) who also stated that the majority of the study population reported poly-drug abuse (55.8%), specifically heroin and amphetamines. Nevertheless, a limitation of Mowbray et al., (1997) was that no urine toxicology tests were performed to identify or confirm the use of substances, which may result in self-report bias or 'Hawthorne effect', since participants could have over-or-under reported about their drug of choice during clinical interviews. Conversely, Mueser et al., (2000) only identified 11% of participants with a severe psychiatric illness who also had a poly-drug dependence. Mueser et al., (2000) sought patients' written consent within five days from admission, however no ethical committee approval was documented in this study. Additionally, all participants in the study were paid, alas seriously compromising the credibility of the study. A quarter (25%) of the participants reported to have an alcohol dependence only, thus affecting the validity of results. Dissimilar to the above findings, Mueser et al., (2000) who obtained data from 325 admitted patients to a psychiatric hospital under an involuntary emergency order, reported that the most common drug of choice was cannabis (25%), followed by cocaine (11%).

Franken et al., (2019) performed a regional retrospective audit on 573 adult patients after gaining ethical permission from the Health Research Ethics Committee of Stellenbosch University, as well as the Western Cape Health Research Committee. The participants in this study were also involuntarily admitted to an acute adult admission unit in a psychiatric hospital, of which 353 had a SAD. In line with Mueser et al., (2000), the authors also identified that cannabis was the most prevalent drug of choice (50%). A strength of this study was that it had a considerably large sample size, alas the present researcher noted that similar to Mueser et al., (2000), this study also consisted of a portion of the population (17.5%) who also had an alcohol dependence only. Furthermore, most of the data collected was from self-reported and collateral information which may indicate recall bias, in addition to the fact that not all participants had urine toxicology testing done at their referral centres. Carmona-Huerta et al., (2020) also identified cannabis to be the most popular substance abused (34.3%). Nevertheless, a limitation of Carmona-Huerta et al., (2020) was that 23.1% of participants did not have toxicological tests performed during the first 24 hours of admission (due to the level of agitation reported by the ward nurses). Consequently, this resulted

in a reduced rate of substances detected, especially in methamphetamines which are detected only when performed within 48-72 hours of use (NIDA, 2019).

In line with the findings by Mowbray et al., (1997), Mueser et al., (2000) also observed that alcohol comorbidity was more common than the most prevalent drug (51%). From the reported 51%, a quarter of them were diagnosed of having an alcohol dependence only, possibly resulting in a population validity limitation. Nevertheless, since the substantial majority of the participants in the study by Mueser et al., (2000) had a DDD, the data was still considerably relevant to the present researcher. Furthermore, Mueser et al., (2000) reported that cannabis and cocaine abuse was directly correlated to a younger age population, while conversely alcohol abuse was more common in the elder population.

Dissimilar to the findings by Mowbray et al., (1997) and Mueser et al., (2000), the study by Sepehrmanesh et al., (2014) concluded that heroin was the drug of choice amongst the DD group. Additionally, Sepehrmanesh et al., (2014) also identified that heroin was the most prevalent drug amongst patients with a mood disorder (48.4%), whilst cannabis was the most prevalent drug amongst patients diagnosed with a non-drug induced psychotic disorder (37.5%). Moreover, 77.9% who reported heroin to be their primary drug dependence also reported a drug dependence duration of over five years. Furthermore, amphetamine was the most prevalent drug amongst patients with a drug duration of two years or less. Sepehrmanesh et al., (2014) indicated that a strength of their study was in the detection of pattern and type of substance abuse, however also stated that a limitation was that their drug screening tests may have resulted in false negatives due to interactions between substances and other drugs.

Locally, the EMCDDA (2020) reports that cocaine has for the first time become the most common substance amongst patients that are seeking treatment for the first time (44.7%), followed by heroin (35%) and cannabis (20.3%). Nevertheless, the EMCDDA (2020) still reports that heroin is the most prevalent substance abused amongst inpatients (70%), followed by cocaine (19%) and cannabis (9%).

2.4.6 Mode of Admission

From the literature search, differences amongst the status of admission were also identified. Ponizovsky et al., (2015) stated that a considerable portion of the dual diagnosis group were admitted on an involuntary basis (38.6%). This trend was generally consistent with findings from the literature (DiNitto et al., 2002; Gavioli et al., 2020) who reported that 33.9% of admissions were of involuntary females, which was more than that of involuntary males (22.5%). Conversely,

Mueser et al., (2000) reported that 95% of all admissions were involuntary, however this finding should be interpreted with caution since the admission criteria only allowed patients with a severe mental illness who were a risk to themselves or others.

2.4.7 The severity of Suicide and Parasuicide attempts

SADs are associated with overdoses and deaths, and even more so in DD individuals, since they are more likely to be complex and are associated with higher incidences of suicide (EMCDDA, 2015). Mueser et al., (2000), Ponizovsky et al., (2015) and Temmingh et al., (2020) have investigated the relationship between suicide and dual diagnosis.

Temmingh et al., (2020) reported that 9.3% of the study population had attempted suicide, while Mueser et al., (2000) reported a much more considerable rate (44.6%). Even though the population of both studies consisted of severely mentally ill patients, the discrepancy in results could be attributed to the fact that Mueser et al., (2000) only consisted of involuntary admissions whereas Temmingh et al., (2020) consisted of patients who were also treated in an outpatient facility. Ponizovsky et al., (2015) indicated that being diagnosed with a psychotic disorder was correlated with higher suicide attempts in DD patients and reported that 21.2% had attempted suicide two months before admission. This finding is in line with Mowbray et al., (1997) who reported that 26.2% attempted suicide 30 days before admission. These findings (Mueser et al., 2000; Ponizovsky et al., 2015) are also in line with Cachia (2020), who reported that locally, 23.9% of SA patients had attempted suicide.

2.4.8 Relationships and living arrangements

Having a marital status of ‘single’ or ‘never married’ is a predominant predictor in dual diagnosis patients and in line with extant literature (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015; Rush & Koegl, 2008; Temmingh et al., 2020). Across all the above studies, a ‘single’ status (which also including those who had been separated, divorced, or widowed) were reported to have an incidence of over 79%, whereas a ‘married’ status was reported in less than 21% across these studies. A possible explanation is that substance abuse comorbid with mental health illness increases impulsivity, violent behaviour, paranoia, ideas of grandeur, hallucinations and inflicts a severe financial burden on both the substance abuser and their families (Castaño Pérez et al., 2017; DiNitto et al., 2002; Temmingh et al., 2020).

Charzynska et al., (2011) and Mueser et al., (2000) identified that the most popular accommodation was to be living alone (53.6% and 43%, respectively) or living with their families (46.4% and 40%, respectively). Nonetheless, these results should be interpreted with caution since Charzynska et al., (2011) had a poor small sample size, and the study by Mueser et al., (2000) consisted of severely ill patients only, who possibly find it harder to live independently. Conversely, this was not in line with Mowbray et al., (1997), who reported that only 19.6% were living alone and 31.6% were homeless. A limitation of this study however was that participants were questioned about their typical living accommodation from the past three years, and not prior to admission, which may suggest recall bias. Furthermore, the study by Gavioli et al., (2020) which featured male participants only reported that the majority (51.4%) were homeowners.

2.4.9 Education as a protective factor against admission

Across the literature, dual diagnosis was associated with lower levels of education (Castaño Pérez et al., 2017; DiNitto et al., 2002; Gavioli et al., 2020) and reported that the most common education level was completing primary/elementary level. Carmona-Huerta et al., (2020) conducted an analytical, retrospective, cross-sectional study of substance abuse admissions during the year 2018 from patients' discharge records. This study gained consent from the ethics and investigation committee of the Instituto Jalisciense de Salud Mental (Jalisco's Mental Health Institute) in addition to all patients' informed consent. In line with the literature, this study also reported that the average education level was that of 8 years (completed primary education level).

Conversely, other studies (Charzynska et al., 2011, Rush & Koegl, 2008; Sepehrmanesh et al., 2014) reported that the most common education level was completing secondary school (52.8%, 34.6%, and 67.5% respectively). The findings by Rush & Koegl (2008) were generally in line with the literature, however the findings of Charzynska et al., (2011) and Sepehrmanesh et al., (2014) regarding secondary education level were double than those reported in the literature, possible due to geographic variation (since the population sample consisted of seven different sites across Europe). Moreover, the findings by Sepehrmanesh et al., (2014) should also be interpreted with caution as it only consisted of nine female participants from a total of 77, which may suggest representation bias.

2.4.10 Unemployment as a predictor for admission

The association between the use of psychotropic substances and unemployment is a known phenomenon and in line with extant literature (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015;

Rush & Koegl, 2008; Sepehrmanesh et al., 2014), who reported that more than half of the participants were unemployed. Nonetheless, these numbers were overwhelmingly higher in both Carmona-Huerta et al., (2020) (86.7%) and Rush & Koegl, (2008) (91.8%). One may argue that a reason for such a high percentage of unemployment is since both studies predominantly consisted of young, single male adults, which are known to be correlated with an increased risk (1.5 to 2 times) of unemployment or hospitalisation (Carmona-Huerta et al., 2020). Additionally, it is also well documented (Carmona-Huerta et al., 2020; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008) that people with severe psychiatric illnesses have greater unemployment rates and find it much harder to keep their job due to poorer levels of education, stigma, and persistent recurrence of psychotic symptoms.

2.4.11 Crimes of the dual patient

The study by Gavioli et al., (2020), which focused on the male DD population, reported that 58.9% were involved in legal court proceedings, which is double that of Rush and Koegl, (2008) (28.7%). With regards to arrests, Mowbray et al., (1997) and Temmingh et al., (2020) reported an incidence of 15% and 32.7%, respectively. One may argue that this may be attributed to the fact that there is a 13-year discrepancy between both studies. Additionally, as time goes by the accessibility and usage of drugs has become more widespread (EMCDDA, 2020) consequently criminal acts such as theft, burglary and drug possession will also increase directly. Another plausible explanation is that during this 13-year period, the law and police enforcement system has much improved, thus increasing the rates of arrest. Furthermore, DiNitto et al., (2002) reported that 68.2% of males were on probation, compared to 44% in female participants, showing a general tendency that males were more likely to commit illegal acts, a finding which is in line with extant literature (DiNitto et al., 2002; Gavioli et al., 2020; Mowbray et al., 1997; Rush & Koegl, 2008; Temmingh et al., 2020).

2.5 Conclusion

Most people who use psychoactive substances hardly ever need hospitalisation (NIDA, 2019), however when it comes to dual diagnosis patients this is not always the case. From reading the above literature, one can appreciate the demographic, socioeconomic, and clinical complexities which are related to dual diagnosis. Hospitalisation may not be the best solution at the moment, however across the world, admissions of SAD and DDD are on the rise (EMCDDA, 2020).

The present study attempts to determine trends and predictors of admissions to the male and female dual diagnosis units in the local state psychiatric hospital. Moreover, this study also strives to provide new light on the most recent findings from the past three years (2018-2020). Additionally, this study also extensively identifies gender differences of DD patients. Even though present literature has reported findings on the possible contributors leading to admission (such as gender, age, marital status, education level, living arrangements, employment, mode of admission, psychiatric diagnosis, substance used, alcohol dependence, crime, and suicide), this study reports other confounding factors which possibly led to admission. These factors which are not reported in the selected literature include variables such as region, recent relationship breakup, family/social support, monthly income, amount (in grams) of primary and secondary drug dependence, daily cost (euros) of drug dependence, route of drug, age of drug onset, duration abstinent from drugs, rehabilitation programmes, pending court cases, gambling, tobacco smoking, family addiction history, prostitution, childhood abuse/victimisation, methadone and buprenorphine/suboxone substitute treatment.

Finally, the following chapter illustrates in detail a comprehensive overview of the population group, the inclusion and exclusion criteria, data collection process and limitations, data analyses, and ethical issues.

Chapter 3

Research Methodology

3 Research Methodology

3.1 Introduction

This chapter provides a description of the methodology employed in this research study. Section 3.2 outlines the aim and objectives of the study, while Section 3.3 highlights the research design and present the reasons why the study employed a retrospective descriptive content analysis, including its benefits and challenges. Moreover, Section 3.3.1 provides a detailed overview of how the whole data collection phase was conducted. Section 3.3.2 outlines how the data collection sheet was devised, together with the list of variables. Additionally, Section 3.4 highlights the steps taken to maintain the validity and reliability throughout the study. Consequently, Section 3.4.1 provides a succinct description of how the pilot study was conducted along with the necessary changes which were implemented. Moreover, Section 3.5 provides a concise description of the data analysis carried out, together with the underpinning governing philosophy of the employed method. The relevant ethical issues related to this study are outlined and deliberated along with the essential implementations taken to circumvent such ethical issues in Section 3.6.

The subsequent section illustrates the aim and objectives of the present study together with the research question.

3.2 The Research Question – Aim and Objectives

The aim of this study is to examine the potential promoters, risk factors along with the demographic, socioeconomic and clinical trends which relate to the admissions of dual diagnosis adults admitted to the DDUs between 2018 and 2020 at the state psychiatric hospital. Furthermore, the study also explores whether these variables which relate to admission varies between the male and female DDUs in Malta.

The study's objectives include:

1. To determine whether the admissions in the dual diagnosis units are influenced by demographic and socioeconomic variables *(gender, age, nationality, region, marital status, children, education, household, living status, social support, recent relationship breakup, employment, employment level, financial income, forensic history, pending court cases, probation, history of victimisation or abuse, prostitution, tobacco smoking).*
2. To determine whether the admissions in the dual diagnosis units are influenced by clinical variables *(year of admission, type of admission, mode of admission, substance abuse vs dual diagnosis, psychiatric illness, primary drug dependence, secondary drug dependence, primary route, daily amount in grams of primary drug, daily amount in grams*

of secondary drug, total daily cost (€) of drug dependence, age of drug onset, duration of drug dependence, duration abstinent from drugs, rehabilitation programmes, gambling addiction, family addiction history, parasuicide, methadone substitute treatment, buprenorphine/suboxone substitute treatment, alcohol abuse comorbidity).

3. To determine whether there are significant differences between male and female adults at the dual diagnosis units.
4. To determine whether there were any significant shifts in trends across the years of admission (2018-2020) at the DDUs.

The following section entails a description and rationale of the research design.

3.3 Research Design

In this section the author provides the process through which the research aim was achieved, together with an explanation and justification of the research design and analysis. This was achieved through conducting a retrospective descriptive content analysis, which is described as a cost-effective and unobtrusive research approach which is used to analyse naturally occurring data from which conclusions can be produced through systematic coding schemes (Insch et al., 1997). Moreover, Harris (2001) states that a strength of descriptive content analysis is that it reduces social desirability bias and can cope with large amounts of data. Additionally, descriptive content analysis has been widely used in applied health and social science topics, including demographic and socioeconomic research (Insch et al., 1997). This makes it relevant to the present researcher's study which examines copious amounts of demographic and socioeconomic data, which potentially lead to the admissions of the male and female dual diagnosis units in Malta between 2018-2020.

Before commencing data collection, a preparation phase was conducted. This phase consisted of: (i) the identification of the relevant material which should be included in the analysis; (ii) the actual material available in the literature; (iii) which population sample should be included and (iv) the timeframe of the study. The present researcher decided to target male and female dual diagnosis patients who were admitted to the MDDU and FDDU over a span of 3-years between 2018 and 2020 (all admissions). The researcher targeted these years for two reasons: (i) to collect the most relevant data available which was related to the research question and (ii) 2018 was the year where both wards were under the care of the same specialised dual diagnosis team (consisting of two psychiatric consultants) and implemented quasi-identical admission criteria, ward structure and programme. Various authors (Borden & Abbot, 2015; Bowling, 2012) state that throughout the preparation phase, one should constantly keep in mind the research question and aims of the study, as the amount of data produced could be overwhelming. Before commencing data

collection, the admission record sheet 'A Guide to Psychiatric History, Mental State Examination, Physical Examination and Management Plan', which consists of clinical and structured questions, was reviewed to identify which demographic, socioeconomic and clinical data could be used for data collection. This is an essential step in content analysis since the buildout of data analysis relies on the content analysed. Additionally, existing literature was examined to aid in forming a concept basis, which is crucial in selecting coding schemes and final analysis.

The consequent step consisted of identifying and selecting coding schemes. This was conducted by searching for keywords which were identified throughout other content analysis of relevant literature, and which were also easily distinguishable from patients' file documentation. Insch et al., (1997) states that disadvantages of coding schemes are that it involves interpretation, thus introducing the risk of biases similar to those from other measurement techniques. Additionally, content analysis may overlook material which is not documented, and abstraction of a word or phrase in isolation of the whole text may also lead to loss of meaning (Insch et al., 1997). With this in mind, the present researcher identified words for coding units within the context of the DDUs only.

Consequently, coding categories were developed in a way that data of a variable could only be inputted and assigned in a single category, and without affecting data of other categories. Once data collection was complete, data were analysed and the frequencies of responses according to their category were illustrated in Chapter 4 through tables, together with the findings of the present study.

3.3.1 Method and Sample Size

The author targeted all admissions of both MDDU and FDDU during a three-year-period (2018-2020). The researcher accounts for all (n=568) admissions within this 3-year time frame to identify possible contributing factors leading to admission, and analyse whether there were any significant trends for each sub-year. Additionally, this study also extensively reports whether there are any significant differences between the male and female study population.

Data was collected through two intermediaries, who coincidentally were the charge nurses of their respective dual diagnosis unit. At the beginning of the study, the intermediaries produced a database consisting of all admissions during the 3-year time frame of all their respective unit admissions (which were available prior to the beginning of the study). This database was produced and accessed only by the intermediaries themselves, and included details of each admission containing patients' name, surname, ID card number and home address. Using this database, both intermediaries collected data from patient files available at the medical records unit at the same psychiatric hospital. The intermediaries then produced a photocopy of the admission record sheet

('A Guide to Psychiatric History, Mental State Examination, Physical Examination and Management Plan') of each admission, as this was the formal assessment tool carried out by a doctor for every admission. The admission record sheet consisted of a structured clinical questionnaire containing demographic, socioeconomic, and clinical information. In order to maintain confidentiality and ensure participant anonymity, the intermediaries redacted any data which enabled the identification of the participants, such as name, surname, ID card number and home address. Moreover, the tool used by the researcher to collect data (as outlined in Appendix D) from the redacted admission sheet was self-devised based on literature. Data was then collected through a retrospective document analysis of the redacted admission sheets (which was collated in analogue form), and relevant data was then digitally inputted into an SPSS database by the present researcher. All data collection conducted by the researcher was performed in a private room within the same hospital setting, in order to safeguard confidential data. Once data collection from each redacted admission sheet had been inputted, the redacted form was handed over by the present researcher back to the intermediaries for shredding. All these steps were always undertaken to safeguard the anonymity of patients and were conducted in adherence to the ethical principles stipulated by the Faculty Research and Ethics Committee (FREC), and the Data Protection Officer at Mount Carmel Hospital.

3.3.2 The Data input sheet

A retrospective document analysis was determined to be the most suitable method of collecting three years of data. Data collection from the hospital medical records was conducted over a period of 26 weeks, specifically between 1st July 2020 and 7th January 2021. The initial step consisted of assembling a list of relevant variables into the data sheet (Appendix D), which outlined the demographic, socioeconomic and clinical variables that guided the data collection from the redacted admission sheets. The variables illustrated in Appendix D had been identified after careful review of both local and foreign literature. As the present researcher had worked in the same hospital and had a 6-year experience working with dual diagnosis patients, the researcher had extensive knowledge of the type of variables and data which were recorded onto the structured clinical questionnaire admission sheet (A Guide to Psychiatric History, Mental State Examination, Physical Examination and Management Plan), in addition to knowledge of the variables related to dual diagnosis patients. This structured clinical questionnaire is the official record sheet used for any admission to the local state psychiatric hospital and was devised and formulated by the local 'Department of Psychiatry'. Nonetheless, from the literature reviewed, the researcher was also able to further envisage which variables needed to be included in the data collection tool. The following demographic, socioeconomic and clinical data (41 variables) were collected from the redacted admission record sheet and documented in Appendix D: (1) gender, (2) age, (3)

nationality, (4) region, (5) marital status, (6) children, (7) education, (8) household, (9) living status, (10) social support, (11) recent relationship breakup, (12) employment, (13) employment level, (14) financial income, (15) forensic history, (16) pending court cases, (17) probation, (18) history of victimisation or abuse, (19) prostitution, (20) tobacco smoking, (21) year of admission, (22) type of admission, (23) mode of admission, (24) substance abuse vs dual diagnosis, (25) psychiatric illness, (26) primary drug dependence, (27) secondary drug dependence, (28) primary route, (29) daily amount in grams of primary drug, (30) daily amount in grams of secondary drug, (31) total daily cost (€) of drug dependence, (32) age of drug onset, (33) duration of drug dependence, (34) duration abstinent from drugs, (35) rehabilitation programmes, (36) gambling addiction, (37) family addiction history, (38) parasuicide, (39) methadone substitute treatment, (40) buprenorphine/suboxone substitute treatment, (41) alcohol abuse comorbidity.

The consequent section discusses issues related to the reliability and validity of the study, including the positive and negative factors which have affected them.

3.4 Reliability and Validity

One of the most important logistic elements in quantitative research is to have protocols which have been rigorously tested prior to the commencement of the study (Sürücü & Maşlakçı, 2020). Anastasi & Urbina, (1997) state that validity deals with how competent the measuring instrument is at carrying out its purpose. Moreover, another characteristic an instrument should have is reliability. Sürücü & Maşlakçı (2020) state that reliability should indicate the consistency and authenticity of the values obtained from repeatedly testing measurements under the same set of conditions when using the same instrument. With regards to content analysis, Potter & Levine-Donnerstein (1999) underlined the significance of avoiding vagueness when defining coding instructions and coding categories. Furthermore, in content analysis, reliability tests aim to be able to put in place the replicability of coding instructions, irrelevant to the different times and coders (Potter & Levine-Donnerstein, 1999).

In the present study, the reliability and validity were certified through the use of a pilot study (as illustrated in Section 3.4.1) conducted by the intermediaries who both independently reviewed eight patient files (four male and four female files) and completed the self-devised data input sheet which was provided by the present researcher himself. Moreover, the researcher also reviewed and completed the data input sheets from the same eight files independently. Ultimately, the data collected from the two separate intermediaries and the researcher were compared to determine its reliability.

A limitation due to the nature of this retrospective study was that it was not possible for the researcher to clear any misconceptions from the data in the admission record sheet, nevertheless a content validation was conducted. Feedback and suggestions were collected after presenting the self-devised data input sheet to the project supervisors, both dual diagnosis consultants, both intermediaries, and the psychiatric nurses working in both DDUs. The above professionals were asked to give their feedback about any relevant coding categories which could have been left out from the data sheet devised by the researcher. A point raised by some of these professionals was that not all patients admitted to the DDUs were diagnosed with a DDD, since a proportion of the patients could have possibly only been diagnosed with a SAD. This was due to several reasons: (i) psychiatrists not having ample time to fully diagnose patients who discharge themselves before being given an official diagnosis, (ii) patients who did not have a psychiatric illness comorbid with their SAD (iii) clinicians who had not fully completed the data of the hospital admission record sheet. Consequently, the researcher then elected to add a coding category which would specify whether the patient had been diagnosed with a SAD or a DDD (listed in the variable list as 'Substance Abuse vs Dual Diagnosis').

Sürücü & Maşlakçı (2020) also state that to guarantee better reliability and validity, data collected must be as substantial as possible. The researcher ensured better reliability and validity of the study by the following. This study collected data from the past three years which was greater than that from the selected literature, which only collected data from a period of one year or less (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Franken et al., 2019; Gavioli et al., 2020; Mowbray et al., 1997; Mueser et al., 2000; Sepehrmanesh et al., 2014; Temmingh et al., 2020). Additionally, this study also had a substantially greater sample size that that of the selected literature (Cachia, 2020; Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Franken et al., 2019; Gavioli et al., 2020; Mowbray et al., 1997; Mueser et al., 2000; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020). Consequently, this study thrived in this aspect as it collected data from the latest three years (2018-2020), in addition to having a substantial sample size which included data from all participants (whose file records were obtainable), making it the most contemporary and extensive local study of DD trends to date. Moreover, this study gives a comprehensible portrayal of the demographic, socioeconomic and clinical trends and differences between the male and female DDUs in the local scenario. The next section illustrates the pilot study used in this research study.

3.4.1 Pilot Study

A pilot study was conducted to trial this research design on a smaller scale and was conducted prior to the initiation of the main data collection phase. Gregory & Radivinsky, (2012) state that a pilot study is recommended in retrospective study designs, since it aids the researcher to determine whether the data collection tool and the coding instructions are practical, relevant, and user-friendly. Moreover, it is also helpful with flagging potential obstacles which may arise during the official data collection phase (Van Teijllingen & Hundley, 2002). Additionally, the aim of the pilot study was to also ascertain that the self-devised data collection tool was internally consistent and reliable.

In this study, the data collection tool was piloted by the two intermediaries of both units who were asked to identify any patient files which were discharged. This process resulted in the identification of eight eligible files to be used in the pilot study. These eligible files consisted of admissions prior to January 2018, in order for the study sample to remain intact. After identification of these files, the intermediaries and the researcher inputted the relevant data into the self-devised data collection sheet (a process which was done individually from each other). The data completed in the data collection sheet by the intermediaries and the researcher were analysed and concluded to be almost identical. A reason to this was due to having coding units which consisted of words which were easily distinguishable in the admission sheet record. This process included providing the researcher with reprinted admission record sheets with the name, surname, identification number and home address redacted to maintain patient's anonymity and confidentiality. Once the pilot study was completed, the researcher handed over the reprinted and redacted admission sheets back to the intermediaries for shredding. The consequent section will portray the method used to analyse the data compiled from the database created.

3.5 Data Analyses

Data analyses in quantitative studies is the systematic organisation and synthesis of data together with the testing of hypotheses from this data (Polit & Beck, 2012). In this research study, a digital database was created consisting of all the different variables listed in Section 3.3.2, and data were stored and organised electronically using the Statistical Package for the Social Sciences (SPSS) version 26. Gregory & Radovinsky (2012) recommend the use of electronic data abstraction software packages since they are known to be more accurate, increase reliability, and allow easier access to data. The findings obtained after conducting a document analysis of the data are illustrated as frequencies or computed percentages in the form of tables in the findings chapter (Chapter 4). Furthermore, computation on nominal data was conducted by using Pearson’s Chi-

Squared Test (χ^2). Moreover, the null hypothesis was accepted if the *p*-value exceeded a significance level of 0.05.

The philosophical underpinnings of this quantitative study followed a positivism approach, since this paradigm confines any observations made to be objective and quantifiable, and result in statistical analysis (Guba, 1990). Guba (1990) states that a positivist paradigm consists of a realist, dualist/objectivist, and experimental approach. The ontology of this study is that of a realist since data is based on an existing reality which is immutable by natural laws. The epistemology is confined to having no interaction or interference between the researcher and the research study, hence consisting of a dualist/objectivist approach. Ultimately, the methodology is experimental since the hypothesis was stated in advance, in addition to having several implementations made to avoid biases and threats to the internal validity of the study.

As the subject matter being researched is that of a sensitive nature (which involves confidential and sensitive information), the following section illustrates the ethical issues and procedures related to the present study.

3.6 Ethical Considerations

Prior to the commencement of this study, this research study sought and obtained ethical approval from the Faculty Research Ethics Committee (FREC) under the ethics approval number 5137/02052020 (attached in Appendix B). The present researcher aimed to maintain patient anonymity, beneficence, and justice throughout the whole research study by adhering to several strict ethical considerations. Despite the fact that the researcher had previously worked in the MDDU for six years, his role throughout the whole study was explicitly as a researcher and not of a psychiatric nurse. Polit & Beck (2012) state that to safeguard participants, researchers who are also nurses as professions should follow the principles articulated within the Belmont Report (1979) which include three main principles, that of respect for the participants, beneficence, and justice. Moreover, obtaining approval is a pre-requisite before commencing the research study (Polit & Beck, 2012). Nevertheless, all necessary institutional permissions to commence this study were requested and granted through all relevant entities within Mount Carmel Hospital, which included the Chief Executive Officer (CEO), Director of Psychiatry, Director of Nursing, DDUs Psychiatrist Consultants, Data Protection Officer, and the intermediaries who both were the charge nurse of their respective DDU (all attached in Appendix C). No form of participant consent was deemed to be necessary since the patient medical records used to collect data belonged to the hospital and approval was granted by the Data Protection Officer of the hospital itself. Moreover, the intermediaries also adhered to the Data Protection Act (2018) while retrieving and redacting data from the patient medical files.

In order to maintain confidentiality and ensure participant anonymity, patient files were accessed only by the intermediaries who reprinted and redacted any data which enabled the identification of the individual, such as name and surname, ID card number and home address. Furthermore, only the variables listed in the data collection tool were collected from the redacted sheets provided by the intermediaries and inputted into an SPSS database by the present researcher alone, within the hospital setting. Moreover, a coding system was set up by the intermediaries which consisted of listing a random number to each redacted admission sheet, hence the researcher never came into contact with any name of the patient. Once data collection from each admission sheet had been inputted, the redacted forms were handed over by the researcher back to the intermediaries for shredding. Sensitive data was encrypted as data collected was stored on a password protected computer to which only the researcher had access. Data collected was anonymous, as the researcher had no data related to the identification of the patients, and hence these data sets were only viewed by the researcher, the supervisors, and examiners.

3.7 Conclusion

In summary, this research study portrays a description of the aim and objectives together with the hypothesis/research questions. The research design consists of a retrospective document analysis of data collected from admissions of the period 2018-2020 and will aim on examining the demographic, socioeconomic and clinical trends which relate to the admissions of dual diagnosis adults admitted to the DDUs. Furthermore, this study will also provide whether there were any significant trends across the years of admission, and also examine whether there were any significant differences between genders. Moreover, a detailed description of the research method was provided together with a depiction of how data was collected and analysed. Reliability and validity of the data collection tools, and data analyses were discussed. Furthermore, a description of the pilot study and the philosophical underpinnings used in this research study were explained. Ultimately, ethical considerations, measures, and issues to safeguard the participants in this study were portrayed and explained in-depth.

Chapter 4

Results

4 Results

4.1 Introduction

This chapter presents the findings emerging from the analysis of the demographic, socioeconomic and clinical data of individuals admitted to the local DDUs between the year 2018 to 2020. Compilation and analysis of all the data was performed through the 'Statistical Product and Service Solutions' SPSS version 26, using descriptive statistics and chi-squared tests.

The results are presented under two main subgroups which pertain to the demographic, socioeconomic (Section 4.2) and clinical findings (Section 4.7), related to the admissions of DDUs over the last three years (2018-2020). Additionally, within these same sections, the author also illustrates the descriptive statistics of each variable along with the statistical analysis of trends relating to the year of admission and gender depicted through cross-tabulations and Pearson's Chi-Squared tests. Moreover, these variables are collected and presented into higher groups in the following sections.

4.2 Demographic and socioeconomic data of individuals admitted to both DDUs

This section illustrates all data related to the demographic and socioeconomic details of admissions to the DDUs, across a 3-year period between 2018 and 2020, and between genders. The data will be illustrated in the form of frequencies and chi-square tests and have been categorised into the subsequent groups:

Section 4.3: Demographics: Gender, Age, Nationality, Region, Marital Status, Children, Education.

Section 4.4: Social Status: Household, Living Status, Social Support, Relationship Breakup.

Section 4.5: Employment and Finances: Employment, Employment Level, Financial Income.

Section 4.6: Forensics and Abuse: Forensic History, Pending Court Cases, Probation, History of Victimisation/Abuse, Prostitution, Smoking.

4.3 Demographics

The subgroup 'Demographics' includes the demographic variables Gender, Age, Nationality, Region, Marital Status, Children and Education – and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

The abbreviation 'O' stands for the observed count, whilst 'E' stands for the expected count.

4.3.1 Gender

The variable 'Gender' presented in Table 4.1 illustrates the frequency of admissions of both male and female patients to the DDUs across the years of admission (2018-2020).

Table 4.1: Admissions to the DDUs by Gender and Year of Admission

Gender trends by Year of Admission							
Gender			**Male**	**Female**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			287 (50.5%)	281 (49.5%)	568 (100%)	0.063	0.80 (1)
Year of Admission	**2018**	**Count**	102	89	191	0.955	0.62 (2)
		Expected	96.5	94.5	191.0		
	2019	**Count**	118	123	241		
		Expected	121.8	119.2	241.0		
	2020	**Count**	67	69	136		
		Expected	68.7	67.3	136.0		
	2018-2020	**Count**	287	281	568		
		Expected	284.0	284.0	568.0		

The gender of individuals admitted to the DDUs were mostly males (n=287, 50.5%), however this was not statistically significant [χ^2 (1, N=568) = 0.063, p = 0.80] since the number of males admitted were close to equal with females (n=281, 49.5%).

When years of admission are compared by gender, it was noted that there were more males admitted in 2018 (O=102, E=96.5), while conversely in 2019 there were more females (O=123, E=119.2), however once again this was not statistically significant [χ^2 (2, N=568) = 0.955, p = 0.62].

4.3.2 Age

The variable 'Age' illustrates the age of individuals on admission to the DDUs during 2018-2020. The ages of patients are divided into six categories (18-24, 25-30, 31-35, 36-40, 41-45; 46+) as illustrated in Table 4.2.

Table 4.2: Admissions to the DDUs by Age, Year of Admission and Gender

Age against Year of Admission and Gender											
Age			**18-24**	**25-30**	**31-35**	**36-40**	**41-45**	**46+**	**Total (%)**	**χ^2**	**Sig (df)**
Total Distribution (%)			87 (15.3%)	119 (21.0%)	125 (22.0%)	122 (21.5%)	70 (12.3%)	45 (7.9%)	568 (100%)	56.972	< 0.01 (6)
Year of Admission	**2018**	**Count**	20	53	57	31	21	9	191	47.146	< 0.01 (10)
		Expected	29.3	40.0	42.0	41.0	23.5	15.1	191.0		
	2019	**Count**	51	51	42	56	25	16	241		
		Expected	36.9	50.5	53.0	51.8	29.7	19.1	241.0		
	2020	**Count**	16	15	26	35	24	20	136		
		Expected	20.8	28.5	29.9	29.2	16.8	10.8	136.0		
Gender	**Male**	**Count**	37	55	63	53	51	28	287	21.986	< 0.01 (5)
		Expected	44.0	60.1	63.2	61.6	35.4	22.7	287.0		
	Female	**Count**	50	64	62	69	19	17	281		
		Expected	43.0	58.9	61.8	60.4	34.6	22.3	281.0		

Across the age groups, statistical significance was reported [χ^2 (6, N=568) = 56.972, $p < 0.01$]. The modal age category for admission to the DDUs was being aged between 31-35 (n=125, 22.0%), however this was closely followed by ages 36-40 (n=122, 21.5%), and 25-30 (n=119, 21.0%). The least common age group was 46+ (n=45, 7.9%).

When examining age by the year of admission, statistical significance was identified [χ^2 (10, N=568) = 47.146, $p < 0.01$], as there was an increase in admissions of adults aged 18-24 in 2019 (O=51, E=36.9), as opposed to 2018 (O=20, E=29.3) and 2020 (O=16, E=20.8). Another finding was that in 2020, there was a decrease in admissions of adults aged 18-30 [(18-30: O=16, E=20.8); (25-30: O=15, E=28.5)] and an increase in adults aged 36+ [(36-40: O=35, E=29.2); (41-45: O=24, E=16.8); (46+: O=20, E=10.8).

When analysing age by gender, statistical significance was also identified [χ^2 (5, N=568) = 21.986, $p < 0.01$], as there were fewer males than expected across ages 18-30 and 36-40 [(18-24: O=37, E=44.0); (25-30: O=55, E=60.1); (36-40: O=53, E=61.6)] when compared to females [(18-24: O=50, E=43.0); (25-30: O=64, E=58.9); (36-40: O=69, E=60.4)].

4.3.3 Nationality

The variable 'Nationality' illustrates the frequency of nationals and non-nationals admitted to the DDUs during 2018-2020, as illustrated in Table 4.3.

Table 4.3: Admissions to the DDUs by Nationality, Year of Admission and Gender

Nationality against Year of Admission and Gender							
Nationality			**National**	**Non-National**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			514 (90.5%)	54 (9.5%)	568 (100%)	372.535	< 0.01 (1)
Year of Admission	**2018**	**Count**	178	13	191	9.389	< 0.01 (2)
		Expected	172.8	18.2	191.0		
	2019	**Count**	222	19	241		
		Expected	218.1	22.9	241.0		
	2020	**Count**	114	22	136		
		Expected	123.1	12.9	136.0		
Gender	**Male**	**Count**	255	32	287	1.820	0.18 (1)
		Expected	259.7	27.3	287.0		
	Female	**Count**	259	22	281		
		Expected	254.3	26.7	281.0		

The findings depict that most admissions were patients of Maltese nationality (n=514, 90.5%) with 9.5% being non-nationals (n=54), and was statistically significant [χ^2 (1, N=568) = 372.535, $p < 0.01$].

When examining nationality by year of admission, statistical significance was identified [χ^2 (2, N=568) = 9.389, $p < 0.01$], as there was an increase in admissions of non-nationals in 2020 (O=22, E=12.9), when compared to 2018 (O=13, E=18.2) and 2019 (O=19, E=22.9).

When analysing nationality by gender, it was observed that there were more admissions of male non-nationals (O=32, E=27.3) when compared to females (O=22, E=26.7), however this was not statistically significant [χ^2 (1, N=568) = 1.820, $p = 0.18$].

4.3.4 Region

The variable 'Region' divides the island of Malta into six (census) districts: (1) Southern Harbour District, (2) Northern Harbour District, (3) South Eastern District, (4) Western District, (5) Northern District, and (6) Gozo and Comino District as presented in Table 4.4. Additional information pertaining the towns and cities which fall under their respective districts are listed in Appendix (A).

Table 4.4: Admissions to the DDUs by Region, Year of Admission and Gender

Region against Year of Admission and Gender											
Region			**District 1 Southern harbour district**	**District 2 Northern harbour district**	**District 3 South eastern district**	**District 4 Western district**	**District 5 Northern district**	**District 6 Gozo and Comino district**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			220 (39.5%)	167 (30.0%)	70 (12.6%)	41 (7.4%)	51 (9.2%)	8 (1.4%)	557* (100%)	364.382	< 0.01 (5)
Year of Admission	**2018**	**Count**	66	66	23	15	14	2	186	15.553	0.11 (10)
		Expected	73.5	55.8	23.4	13.7	17.0	2.7	186.0		
	2019	**Count**	98	71	31	18	20	1	239		
		Expected	94.4	71.7	30.0	17.6	21.9	3.4	239.0		
	2020	**Count**	56	30	16	8	17	5	132		
		Expected	52.1	39.6	16.6	9.7	12.1	1.9	132.0		
Gender	**Male**	**Count**	101	101	41	13	22	5	283	17.673	< 0.01 (5)
		Expected	111.8	84.8	35.6	20.8	25.9	4.1	283.0		
	Female	**Count**	119	66	29	28	29	3	274		
		Expected	108.2	82.2	34.4	20.2	25.1	3.9	274.0		

**11 were excluded due to missing data relating to the variable.*

Across all regions, statistical significance was reported in admittance to the DDUs [χ^2 (5, N=557) = 364.382, $p < 0.01$]. The majority of admissions to the DDUs were identified to be from the Southern Harbour (District 1) (n=220, 39.5%), followed by the Northern Harbour (District 2) (n=167, 30.0%) and South Eastern (District 3), (n=70, 12.6%). The least number of admissions identified were from Gozo and Comino (District 6) (n=8, 1.4%).

When examining regions by year of admission, there was an increase in admissions from the Southern Harbour in 2020 (O=56, E=52.1), while conversely admissions from the Northern Harbour decreased (O=30, E=39.6), however this was not statistically significant [χ^2 (10, N=557) = 15.553, p = 0.11].

When analysing regions by gender, statistical significance was reported [χ^2 (5, N=557) = 17.673, p < 0.01]. There were significantly more male individuals from the Northern Harbour (O=101, E=84.8) when compared to females (O=66, E=82.2). Conversely, there were more female individuals admitted from the Southern Harbour (O=119, E=108.2) and Western District (O=28, E=20.2), than males (Southern Harbour: O=101, E=111.8; Western District: O=13, E=20.8).

4.3.5 Marital Status

The variable 'Marital Status' is categorised into three groups, Married, Separated/Divorced/Widowed and Single as presented in Table 4.5.

Table 4.5: Admissions to the DDUs by Marital Status, Year of Admission and Gender

Marital Status against Year of Admission and Gender								
Marital Status			**Married**	**Separated/ Divorced**	**Single**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			39 (6.9%)	77 (13.6%)	452 (79.6%)	568 (100%)	550.419	< 0.01 (2)
Year of Admission	**2018**	**Count**	7	27	157	191	9.374	0.05 (4)
		Expected	13.1	25.9	152.0	191.0		
	2019	**Count**	21	25	195	241		
		Expected	16.5	32.7	191.8	241.0		
	2020	**Count**	11	25	100	136		
		Expected	9.3	18.4	108.2	136.0		
Gender	**Male**	**Count**	26	47	214	287	9.299	< 0.01 (2)
		Expected	19.7	38.9	228.4	287.0		
	Female	**Count**	13	30	238	281		
		Expected	19.3	38.1	223.6	281.0		

Marital Status was identified to be statistically significant for admittance to the DDUs [χ^2 (2, N=568) = 550.419, p < 0.01], and the modal category was identified as being 'Single' (n=452, 79.6%), followed by 'Separated/Divorced/Widowed' (n=77, 13.6%). Being 'Married' was the least common amongst service users (n=39, 6.9%).

Statistical significance was identified for marital status by the years of admission [χ^2 (4, N=568) = 9.374, p = 0.05], as in 2020 there was an increase in admissions of individuals who were

separated/divorced (O=25, E=18.4) and married (O=11, E=9.3), whereas conversely there was a decrease in admissions of single individuals during this same year (O=195, E=191.8).

When analysing marital status by gender, statistical significance was also identified [χ^2 (2, N=568) = 9.299, p < 0.01], as there were more married males (O=26, E=19.7) and separated/divorced males (O=47, E=38.9), whereas there were more females who were single (O=238, E=223.6).

4.3.6 Children

The variable 'Children' is categorised into 5 subgroups, i.e., representing persons having no children, 1 child, 2 children, 3 children and 4+ children, as illustrated in Table 4.6.

Table 4.6: Admissions to the DDUs by Children, Year of Admission and Gender

Children against Year of Admission and Gender										
Children			**0**	**1**	**2**	**3**	**≥4**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			234 (43.6%)	67 (12.5%)	117 (21.8%)	88 (16.4%)	31 (5.8%)	537* (100%)	223.14	< 0.01 (4)
Year of Admission	**2018**	**Count**	71	27	34	36	14	182	12.765	0.12 (8)
		Expected	79.3	22.7	39.7	29.8	10.5	182.0		
	2019	**Count**	105	20	59	32	10	226		
		Expected	98.5	28.2	49.2	37.0	13.0	226.0		
	2020	**Count**	58	20	24	20	7	129		
		Expected	56.2	16.1	28.1	21.1	7.4	129.0		
Gender	**Male**	**Count**	145	43	59	29	6	282	39.413	< 0.01 (4)
		Expected	122.9	35.2	61.4	46.2	16.3	282.0		
	Female	**Count**	89	24	58	59	25	255		
		Expected	111.1	31.8	55.6	41.8	14.7	255.0		

**31 were excluded due to missing data relating to the variable.*

The number of children across DDU admissions was identified to be statistically significant [χ^2 (4, N=537) = 223.14, p < 0.01]. Having no children was identified to be the modal category amongst service users (n=234, 43.6%), however after further analysis of the subgroups it was found that having at least one child was in fact most common (n=303, 56.4%). Moreover, among the service users who had children, having two children (n=117, 21.8%) was most the most popular family setting, followed by three children (n=88, 16.4%), one child (n=67, 12.5%) and four or more children (n=31, 5.8%).

When examining years of admission, there was an increase in admissions of patients who did not have children during 2019 (O=105, E=98.5) and 2020 (O=58, E=56.2), when compared to 2018 (O=71, E=79.3), however this was not statistically significant [χ^2 (8, N=537) = 12.765, p = 0.12].

When comparing number of children by gender, statistical significance was identified [χ^2 (4, N=537) = 39.413, p < 0.01]. A higher incidence of children was more prevalent amongst female

patients (2 children: O=58, E=55.6; 3 children: O=59, E=41.8; ≥4 children: O=25, E=14.7), as opposed to males (2 children: O=59, E=61.4; 3 children: O=29, E=46.2; ≥4 children: O=6, E=16.3). Moreover, having none to one child only was significantly more prevalent amongst males (0 children: O=145, E=122.9; 1 child: O=43, E=35.2) compared to females (0 children: O=89, E=111.1; 1 child: O=24, E=31.8).

4.3.7 Education

The variable 'Education' is subcategorised into three different education levels, mainly primary, secondary, and tertiary level as presented in Table 4.7.

Table 4.7: Admissions to the DDUs by Education, Year of Admission and Gender

Education against Year of Admission and Gender								
Education			**Primary**	**Secondary**	**Tertiary**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			139 (24.9%)	341 (61.0%)	79 (14.1%)	559* (100%)	202.233	< 0.01 (2)
Year of Admission	**2018**	**Count**	39	121	29	189	11.280	0.02 (4)
		Expected	47.0	115.3	26.7	189.0		
	2019	**Count**	70	143	23	236		
		Expected	58.7	144.0	33.4	236.0		
	2020	**Count**	30	77	27	134		
		Expected	33.3	81.7	18.9	134.0		
Gender	**Male**	**Count**	49	179	57	285	28.242	< 0.01 (2)
		Expected	70.9	173.9	40.3	285.0		
	Female	**Count**	90	162	22	274		
		Expected	68.1	167.1	38.7	274.0		

**9 were excluded due to missing data relating to the variable.*

Across DDU admissions, education was statistically significant [χ^2 (2, N=559) = 202.233, p < 0.01], and the most common education level of patients was having a secondary education level (n=341, 61.0%), followed by primary education (n=139, 24.9%) and tertiary level education (n=79, 14.1%).

A significant difference in education levels across the years of admission, was the increase of admissions of individuals with a tertiary level education in 2020 (O=27, E=18.9), as opposed to 2019 (O=23, E=33.4) [χ^2 (4, N=559) = 11.28, p = 0.02].

When examining education by gender, statistical significance was identified [χ^2 (2, N=559) = 28.242, p < 0.01], as more males were admitted with higher levels of education (Secondary: O=179, E=173.9; Tertiary: O=57, E=40.3), than females (Secondary: O=162, E=167.1; Tertiary:

O=22, E=38.7). Moreover, there were significantly more females who only had a primary education level (O=90, E=68.1), as opposed to males (O=49, E=70.9).

4.4 Social Status

The subgroup 'Social Status' includes the demographic variables Household, Living Status, Social Support, Relationship Breakup – and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.4.1 Household

The variable 'Household' consists of the different type of household settings DDU patients were residing in, if any, and are illustrated in Table 4.8.

Table 4.8: Admissions to the DDUs by Household, Year of Admission and Gender

Household against Year of Admission and Gender											
Household			**Own/Rented House**	**Parent(s)' House**	**Relatives/ Friend's House**	**Homeless**	**Partner's House**	**Social Housing**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			88 (15.6%)	240 (42.6%)	29 (5.2%)	143 (25.4%)	52 (9.2%)	11 (2.0%)	563* (100%)	390.382	< 0.01 (5)
Year of Admission	**2018**	**Count**	12	106	11	46	10	6	191	43.599	< 0.01 (10)
		Expected	29.9	81.4	9.8	48.5	17.6	3.7	191.0		
	2019	**Count**	49	94	12	59	20	4	238		
		Expected	37.2	101.5	12.3	60.5	22.0	4.7	238.0		
	2020	**Count**	27	40	6	38	22	1	134		
		Expected	20.9	57.1	6.9	34.0	12.4	2.6	134.0		
Gender	**Male**	**Count**	60	159	14	49	5	0	287	95.926	< 0.01 (5)
		Expected	44.9	122.3	14.8	72.9	26.5	5.6	287.0		
	Female	**Count**	28	81	15	94	47	11	276		
		Expected	43.1	117.7	14.2	70.1	25.5	5.4	276.0		

**5 were excluded due to missing data relating to the variable.*

This study identified that there was statistical significance in admittance across households [χ^2 (5, N=563) = 390.382, $p < 0.01$]. Most patients reported to be living in their Parents' household (n=240, 42.6%), while the second most common were patients who were homeless (n=143, 25.4%), followed by living in a rented/own household (n=88, 15.6). The least common household setting was living in social housing (n=11, 2.0%).

Across the years of admission and household, statistical significance was identified [χ^2 (10, N=563) = 43.599, $p < 0.01$], in 2020 there was a significant decrease in admissions of patients who lived in their parents' house, when compared to 2018 (O=106, E=81.4) and 2019 (O=94, E=101.5). Conversely, during 2020 there was a significant increase in admissions of individuals

who were homeless (O=38, E=34), lived in their own household (O=27, E=20.9), or lived in their partner's household (O=22, E= 12.4).

Between genders and household, statistical significance was identified [χ^2 (5, N=563) = 95.926, p < 0.01], as there were significantly more males who lived in their own household (O=60, E=44.9) or lived in their parent's household (O=159, E=122.3), as opposed to females (Own: O=28, E=43.1; Parent: O=81, E=117.7). Furthermore, there were significantly more homeless females (O=94, E=70.1), and females living in their partner's household (O=47, E=25.5), when compared to males [(O=49, E=72.9) and (O=5, E=26.5), respectively]. No male patients reported living in social housing (O=0, E=5.6), as opposed to females (O=11, E=5.4).

4.4.2 Living Status

The variable 'Living Status' portrays with whom patients were living with, if any, as illustrated in Table 4.9.

Table 4.9: Admissions to the DDUs by Living Status, Year of Admission and Gender

Living Status against Year of Admission and Gender									
Living Status			**Alone**	**Parents**	**Relatives and Friends**	**Partner**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			192 (34.1%)	218 (38.7%)	33 (5.9%)	120 (21.3%)	563* (100%)	146.606	< 0.01 (3)
Year of Admission	**2018**	**Count**	54	98	11	28	191	23.373	< 0.01 (6)
		Expected	65.1	74.0	11.2	40.7	191.0		
	2019	**Count**	84	84	14	56	238		
		Expected	81.2	92.2	14.0	50.7	238.0		
	2020	**Count**	54	36	8	36	134		
		Expected	45.7	51.9	7.9	28.6	134.0		
Gender	**Male**	**Count**	77	161	12	37	287	77.038	< 0.01 (3)
		Expected	97.9	111.1	16.8	61.2	287.0		
	Female	**Count**	115	57	21	83	276		
		Expected	94.1	106.9	16.2	58.8	276.0		

**5 were excluded due to missing data relating to the variable.*

This study identified that there was statistical significance in the living status of patients across DDU admissions [χ^2 (3, N=563) = 146.606, p < 0.01]. Most patients were living with their parents (n=218, 38.7%), or living alone (n=192, 34.1%), followed by living with their partner (n=120, 21.3%). The least common was living with a relative/friend (n=33, 5.9%).

When comparing the years of admissions with living status, a significant finding [χ^2 (6, N=563) = 23.373, p < 0.01] was that patients who lived with their parents was most common in 2018 (O=98, E=74), however this decreased in both 2019 (O=84, E=92.2) and significantly in 2020 (O=36, E=51.9). Moreover, it was noted that in the year 2020 there were an increase in admissions of patients living alone (O=54, E=45.7) or with their partner (O=36, E=28.6).

Between gender and living status, a significant difference [χ^2 (3, N=563) = 77.038, $p < 0.01$] noted was that significantly more male patients lived with their parents (O=161, E=111.1), as opposed to females (O=57, E=106.9). Conversely, there were more female patients lived alone (O=115, E=94.1) or lived with their partner (O=83, E=58.8), when compared to males [(O=77, E=97.9) and (O=37, E=61.2), respectively].

4.4.3 Social Support

The variable 'Social Support' illustrated in Table 4.10 presents the frequencies of whether patients have social or family support prior to admission.

Table 4.10: Admissions to the DDUs by Social Support, Year of Admission and Gender

Social Support against Year of Admission and Gender							
Social Support			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			378 (67.1%)	185 (32.9%)	563* (100%)	66.162	< 0.01 (1)
Year of Admission	**2018**	**Count**	143	48	191	8.531	< 0.01 (2)
		Expected	128.2	62.8	191.0		
	2019	**Count**	154	84	238		
		Expected	159.8	78.2	238.0		
	2020	**Count**	81	53	134		
		Expected	90.0	44.0	134.0		
Gender	**Male**	**Count**	221	66	287	25.815	< 0.01 (1)
		Expected	192.7	94.3	287.0		
	Female	**Count**	157	119	276		
		Expected	185.3	90.7	276.0		

**5 were excluded due to missing data relating to the variable.*

The majority (67.1%) of participants reported to have family/social support (n=378), while 185 participants (32.9%) reported that they had no social support [χ^2 (1, N=563) = 66.162, $p < 0.01$].

When examining social support across years of admission, statistical significance was identified [χ^2 (2, N=563) = 8.531, $p < 0.01$], as there was an increase in admissions of patients without social support in 2019 (O=84, E=78.2) and 2020 (O=53, E=44.0) as opposed to 2018 (O=48, E=62.8).

Statistical significance between genders and social support [χ^2 (1, N=563) = 25.815, $p < 0.01$] indicated that more males had social support (O=221, E=192.7), when compared to females (O=157, E=185.3).

4.4.4 Relationship Breakup

The variable 'Relationship Breakup' illustrated in Table 4.11 presents the frequencies of whether patients had a recent relationship breakup, six months prior to admission.

Table 4.11: Admissions to the DDUs by Relationship Breakup, Year of Admission and Gender

Relationship Breakup against Year of Admission and Gender							
Relationship Breakup			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			292 (53.3%)	256 (46.7%)	548* (100%)	2.365	0.12 (1)
Year of Admission	**2018**	**Count**	109	82	191	2.329	0.31 (2)
		Expected	101.8	89.2	191.0		
	2019	**Count**	120	107	227		
		Expected	121.0	106.0	227.0		
	2020	**Count**	63	67	130		
		Expected	69.3	60.7	130.0		
Gender	**Male**	**Count**	127	159	286	18.946	< 0.01 (1)
		Expected	152.4	133.6	286.0		
	Female	**Count**	165	97	262		
		Expected	139.6	122.4	262.0		

**20 were excluded due to missing data relating to the variable.*

The majority reported they had experienced a relationship breakup six months prior to admission (n=292, 53.3%), however this was not statistically significant [χ^2 (1, N=548) = 2.365, p = 0.12].

Across the years of admission, a trend identified was that from 2018 to 2020, the number of admissions of individuals who experienced a recent relationship breakup decreased [(2018: O=109, E=101.8); (2019: O=120, E=121.0); (2020: O=63, E=69.3)], however this was not statistically significant [χ^2 (2, N=548) = 2.329, p = 0.31].

When comparing relationship breakup by gender, statistical significance was identified [χ^2 (1, N=548) = 18.946, p < 0.01], as more female patients reported a recent relationship breakup (O=165, E=139.6) when compared to males (O=127, E=152.4).

4.5 Employment and Finances

The subgroup 'Employment and Finances' includes the socioeconomic variables Employment, Employment Level, Financial Income - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.5.1 Employment

The variable 'Employment' illustrated in Table 4.12 reports whether patients were employed, unemployed or boarded out (i.e., legally deemed to be unable to work due to a chronic illness or injury), six months prior to admission.

Table 4.12: Admissions to the DDUs by Employment, Year of Admission and Gender

Employment against Year of Admission and Gender								
Employment			**Yes**	**No**	**Boarded Out**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			245 (43.2%)	295 (52%)	27 (4.8%)	567* (100%)	214.899	< 0.01 (2)
Year of Admission	**2018**	**Count**	73	108	9	190	11.057	0.03 (4)
		Expected	82.1	98.9	9	190		
	2019	**Count**	104	130	7	241		
		Expected	104.1	125.4	11.5	241		
	2020	**Count**	68	57	11	136		
		Expected	58.8	70.8	6.5	136		
Gender	**Male**	**Count**	163	100	23	286	70.705	< 0.01 (2)
		Expected	123.6	148.8	13.6	286.0		
	Female	**Count**	82.0	195.0	4.0	281.0		
		Expected	121.4	146.2	13.4	281.0		

**1 was excluded due to missing data relating to the variable.*

Most patients (52.0%) reported to have been unemployed (n=295), while another 245 patients (43.2%) reported to have been employed, whilst only 27 patients (4.8%) reported that they had been 'boarded out' [χ^2 (2, N=567) = 214.899, $p < 0.01$].

Throughout the years of admission and employment, statistical significance was identified [χ^2 (4, N=567) = 11.057, $p = 0.03$]. There was an increase in admissions of 'boarded out' patients in 2020 (O=11, E=6.5), compared to year 2018 (O=9, E=9) and 2019 (O=7, E=11.5). Moreover, a significant increase of employed patients was identified in 2020 (O=68, E=58.8), compared to previous years (2018: O=73, E=82.1; 2019: O=104, E=104.1).

When comparing employment between genders, statistical significance was reported [χ^2 (2, N=567) = 70.705, $p < 0.01$], as substantially more males were employed (O=163, E=123.6), compared to females (O=82, E=121.4). Consequently, considerably more females were unemployed (O=195, E=146.2), when compared to males (O=100, E=148.8), while significantly more males were boarded out (O=23, E=13.6) when compared to females (O=4, 13.4).

4.5.2 Employment Level

The variable 'Employment level' presented in Table 4.13 reports the type of employment of service users, i.e., occupational/technical occupations, professional/managerial occupation, and no occupation.

Table 4.13: Admissions to the DDUs by Employment Level, Year of Admission and Gender

Employment Level against Year of Admission and Gender								
Employment Level			**No employment**	**Operational and Technical**	**Professional and Managerial**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			320 (56.5%)	216 (38.2%)	30 (5.3%)	566* (100%)	228.82	< 0.01 (2)
Year of Admission	**2018**	**Count**	114	63	13	190	6.692	0.15 (4)
		Expected	107.4	72.5	10.1	190.0		
	2019	**Count**	139	90	11	240		
		Expected	135.7	91.6	12.7	240.0		
	2020	**Count**	67	63	6	136		
		Expected	76.9	51.9	7.2	136.0		
Gender	**Male**	**Count**	121	134	30	285	61.506	< 0.01 (2)
		Expected	161.1	108.8	15.1	285.0		
	Female	**Count**	199	82	0	281		
		Expected	158.9	107.2	14.9	281.0		

**2 were excluded due to missing data relating to the variable.*

The majority of patients had no type of employment (n=320, 56.5%). However, 216 patients (38.2%) worked in operational/technical occupations, while the least common employment level was working in professional/managerial occupations (n=30, 5.3%) [χ^2 (2, N=566) = 228.82, p < 0.01].

Across employment level and years of admission, the author identified that admissions of operational/technical individuals increased in 2020 (O=63, E=51.9), whereas unemployment decreased (O=67, E=76.9) however this was not statistically significant [χ^2 (4, N=566) = 6.692, p = 0.15].

Conversely, differences between genders and employment level were statistically significant [χ^2 (2, N=566) = 61.506, p < 0.01]. There were more males working in operational/technical jobs (O=134, E=108.8) and professional/managerial jobs, (O=30, E:15.1), compared to females [(O=82, E=107.2) and (O=0, E=14.9), respectively]. Consequently, the number of females with no employment level was significantly higher than expected (O=199, E=158.9) when compared to males (O=121, E=161.1).

4.5.3 Financial Income

The variable 'Financial Income' presented in Table 4.14 reports the monthly income of service users. An income of €500-€999 and lower portrays a low income, whereas an income of €1000-€1999 portrays a stable income, while €2000+ portrays a high income.

Table 4.14: Admissions to the DDUs by Financial Income, Year of Admission and Gender

Financial Income against Year of Admission and Gender										
Financial Income			**No income**	**Less than €500 (social benefits)**	**€500-999**	**€1000-1999**	**€2000+**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			214 (37.8%)	110 (19.4%)	113 (20%)	104 (18.4%)	25 (4.4%)	566* (100%)	159.318	< 0.01 (4)
Year of Admission	**2018**	**Count**	74	43	24	41	8	190	22.096	< 0.01 (8)
		Expected	71.8	36.9	37.9	34.9	8.4	190.0		
	2019	**Count**	103	37	49	40	11	240		
		Expected	90.7	46.6	47.9	44.1	10.6	240.0		
	2020	**Count**	37	30	40	23	6	136		
		Expected	51.4	26.4	27.2	25.0	6.0	136.0		
Gender	**Male**	**Count**	45	80	55	80	25	285	149.790	< 0.01 (4)
		Expected	107.8	55.4	56.9	52.4	12.6	285.0		
	Female	**Count**	169	30	58	24	0	281		
		Expected	106.2	54.6	56.1	51.6	12.4	281.0		

**2 were excluded due to missing data relating to the variable.*

Most patients reported to have no financial income (n=214, 37.8%), while 113 patients (20%) reported that they had a low monthly income of €500- €999, followed by 110 patients (19.4%) who were on social benefits (less than €500), whereas 104 patients (18.4%) had a stable income of €1000-€1999. The least common monthly income was €2000+ (n=25, 4.4%). Consequently, admittance to the DDUs by financial income was statistically significant [χ^2 (4, N=566) = 159.318, $p < 0.01$].

Across the years of admission, a trend identified was that in 2020 there were a decrease in admissions of patients with no monthly income (O=37, E=51.4) compared to 2018 (O=74, E=71.9) and 2019 (O=103, E=90.7). Nevertheless, in 2020 there was an increase in admissions of patients who had a low monthly income of €500- €999 (O=40, E=27.2) or less than €500 (O=30; E=26.4) [χ^2 (8, N=566) = 22.096, $p < 0.01$].

When comparing financial income by gender, statistically significant differences were identified [χ^2 (4, N=566) = 149.790, $p < 0.01$]. Male admissions were significantly correlated to a higher monthly income (€2000: O=25, E=12.6; €1000-€1999: O=80, E=52.4), as opposed to females (€2000: O=0, E=12.4; €1000-€1999: O=24, E=51.6). Nevertheless, more males reported to be on social benefits (O=80, E=55.4), when compared to females (O=30, E=54.6), however significantly more females reported to have no income (O=169, E=106.2) when compared to males (O=45, E=107.8).

4.6 Forensics and Abuse

The subgroup 'Forensics and Abuse' includes the variables Forensic History, Pending Court Cases, Probation, History of Victimisation/Abuse, Prostitution, Smoking - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.6.1 Forensic History

The variable 'Forensic History' presented in Table 4.15 reports the frequencies of how many patients had been criminally convicted.

Table 4.15: Admissions to the DDUs by Forensic History, Year of Admission and Gender

Forensic History against Year of Admission and Gender							
Forensic History			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			268 (47.3%)	299 (52.7%)	567* (100%)	1.695	0.19 (1)
Year of Admission	**2018**	**Count**	79	111	190	4.175	0.12 (2)
		Expected	89.8	100.2	190.0		
	2019	**Count**	124	117	241		
		Expected	113.9	127.1	241.0		
	2020	**Count**	65	71	136		
		Expected	64.3	71.7	136.0		
Gender	**Male**	**Count**	128	159	287	1.659	0.20 (1)
		Expected	135.7	151.3	287.0		
	Female	**Count**	140	140	280		
		Expected	132.3	147.7	280.0		

**1 was excluded due to missing data relating to the variable.*

The majority of patients did not have a forensic history (n=299, 52.7%), however no significant relationship was identified for patient admittance by forensic history [χ^2 (1, N=567) = 1.695, p = 0.19], year of admission [χ^2 (2, N=567) = 4.175, p = 0.12] and gender [χ^2 (1, N=567) = 1.659, p = 0.20].

4.6.2 Pending Court Cases

The variable 'Pending Court Cases' depicted in Table 4.16 reports the frequency of patients who had at least one pending court case on admission.

Table 4.16: Admissions to the DDUs by Pending Court Cases, Year of Admission and Gender

Pending Court Cases against Year of Admission and Gender							
Pending Court Cases			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			295 (52.7%)	265 (47.3%)	560* (100%)	1.607	0.21 (1)
Year of Admission	**2018**	**Count**	90	96	186	9.535	< 0.01 (2)
		Expected	98.0	88.0	186.0		
	2019	**Count**	143	95	238		
		Expected	125.4	112.6	238.0		
	2020	**Count**	62	74	136		
		Expected	71.6	64.4	136.0		
Gender	**Male**	**Count**	130	157	287	12.871	< 0.01 (1)
		Expected	151.2	135.8	287.0		
	Female	**Count**	165	108	273		
		Expected	143.8	129.2	273.0		

**8 were excluded due to missing data relating to the variable.*

The majority of service users had a pending court case on admission (n=295, 52.7%), however this was not statistically significant to admittance to the DDUs [χ^2 (1, N=560) = 1.607, p = 0.21].

When analysing trends across the years of admission and pending court cases [χ^2 (2, N=560) = 9.535, p < 0.01], this study identified that dissimilar to 2018 (O=90, E=98.0) and 2020 (O=62, E=71.6), 2019 had a significant increase in admissions of patients with a pending court case on admission (O=143, E=125.4).

A trend identified between genders was that significantly more females had pending court cases on admission (O=165, E=143.8), compared to males (O=130, E=151.2) [χ^2 (1, N=560) = 12.871, p < 0.01].

4.6.3 Probation

The variable 'Probation' illustrated in Table 4.17 reports the frequency of how many patients were on probation do to a substance dependent related offense upon admission.

Table 4.17: Admissions to the DDUs by Probation, Year of Admission and Gender

Probation against Year of Admission and Gender							
Probation			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			241 (43%)	320 (57%)	561* (100%)	1.607	0.21 (1)
Year of Admission	**2018**	**Count**	73	117	190	6.881	0.03 (2)
		Expected	81.6	108.4	190.0		
	2019	**Count**	117	120	237		
		Expected	101.8	135.2	237.0		
	2020	**Count**	51	83	134		
		Expected	57.6	76.4	134.0		
Gender	**Male**	**Count**	96	191	287	21.686	< 0.01 (1)
		Expected	123.3	163.7	287.0		
	Female	**Count**	145	129	274		
		Expected	117.7	156.3	274.0		

**7 were excluded due to missing data relating to the variable.*

The majority of patients (n=320, 57%) reported to have not been on probation on admission, however this was not statistically significant to admittance to the DDUs [χ^2 (1, N=561) = 1.607, p = 0.21].

Across the years of admission, probation was identified to be statistically significant [χ^2 (2, N=561) = 6.881, p = 0.03], as an increase in admissions of patients on probation during 2019 was identified (O=117, E=101.8), which was opposite to 2018 (O=73, E=81.6) and 2020 (O=51, E=57.6).

When examining probation by gender, a statistical difference was that significantly more females were on probation (O=145, E=117.7), when compared to males (O=96, E=123.3) [χ^2 (1, N=561) = 21.686, $p < 0.01$].

4.6.4 Childhood Abuse/Victimisation

The variable 'Childhood Abuse/Victimisation' illustrated in Table 4.18 presents the frequency of how many service users had experienced childhood related abuse (sexual, physical, and emotional).

Table 4.18: Admissions to the DDUs by Childhood Abuse, Year of Admission and Gender

Childhood Abuse against Year of Admission and Gender							
Childhood Abuse			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			353 (65.7%)	184 (34.3%)	537* (100%)	53.186	< 0.01 (1)
Year of Admission	**2018**	**Count**	108	78	186	7.603	0.02 (2)
		Expected	122.3	63.7	186.0		
	2019	**Count**	156	70	226		
		Expected	148.6	77.4	226.0		
	2020	**Count**	89	36	125		
		Expected	82.2	42.8	125.0		
Gender	**Male**	**Count**	141	133	274	50.620	< 0.01 (1)
		Expected	180.1	93.9	274.0		
	Female	**Count**	212	51	263		
		Expected	172.9	90.1	263.0		

**31 were excluded due to missing data relating to the variable.*

The significant majority reported to have suffered from childhood abuse (n=353, 65.7%), and this was statistically significant to admittance to the DDUs [χ^2 (1, N=537) = 53.186, $p < 0.01$].

Across the years of admission, there was a significant increase in admissions of patients who had experienced abuse during their childhood in both 2019 (O=156, E=148.6) and 2020 (O=89, E=82.2) [χ^2 (2, N=537) = 7.603, $p = 0.02$].

When analysing childhood abuse by gender, significantly more females reported to have experienced childhood abuse (O=212, E=172.9), when compared to males (O=141, E=180.1) [χ^2 (1, N=537) = 50.620, $p < 0.01$].

4.6.5 Prostitution

The variable 'Prostitution' examines the frequency of individuals admitted to the DDU who had engaged in prostitution prior to admission, as illustrated in Table 4.19.

Table 4.19: Admissions to the DUUs by Prostitution, Year of Admission and Gender

Prostitution against Year of Admission and Gender							
Prostitution			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			268 (48.8%)	281 (51.2%)	549 (100%)	0.308	0.58 (1)
Year of Admission	**2018**	**Count**	81	108	189	6.461	0.04 (2)
		Expected	92.3	96.7	189.0		
	2019	**Count**	128	105	233		
		Expected	113.7	119.3	233.0		
	2020	**Count**	59	68	127		
		Expected	62.0	65.0	127.0		
Gender	**Male**	**Count**	52	229	281	211.660	< 0.01 (1)
		Expected	137.2	143.8	281.0		
	Female	**Count**	216	52	268		
		Expected	130.8	137.2	268.0		

**19 were excluded due to missing data relating to the variable.*

Even though the variable prostitution was not statistically significant to the admittance of individuals to the DDUs [χ^2 (1, N=549) = 0.308, p = 0.58], a considerable number of patients (n=268, 48.8%) had engaged in prostitution.

When analysing the years of admission, it was noted that in 2020 there was a decrease in admissions of patients who had engaged in prostitution (O=59, E=62), whereas in 2019 there was a significant increase (O=128, E=113.7) [χ^2 (2, N=549) = 6.461, p = 0.04].

When analysing prostitution by gender, it was identified that a significant number [χ^2 (1, N=549) = 211.660, p < 0.01] of females had engaged in prostitution (O=216, E=130.8) when compared to males (O=52, E=137.2.

4.6.6 Smoking

The variable 'Smoking' examines the frequency of tobacco smokers amongst DDU patients as portrayed in Table 4.20. Patients labelled as 'No' relate to individuals who had either stopped smoking or never smoked tobacco during their life.

Table 4.20: Admissions to the DDUs by Tobacco Smoking, Year of Admission and Gender

Tobacco Smoking against Year of Admission and Gender							
Tobacco Smoking			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			544 (95.8%)	24 (4.2%)	568 (100%)	476.056	< 0.01 (1)
Year of Admission	**2018**	**Count**	187	4	191	3.405	0.18 (2)
		Expected	182.9	8.1	191.0		
	2019	**Count**	229	12	241		
		Expected	230.8	10.2	241.0		
	2020	**Count**	128	8	136		
		Expected	130.3	5.7	136.0		
Gender	**Male**	**Count**	282	5	287	8.840	< 0.01 (1)
		Expected	274.9	12.1	287.0		
	Female	**Count**	262	19	281		
		Expected	269.1	11.9	281.0		

The significant majority service users were currently smoking tobacco cigarettes (n=544, 95.8%), whereas the rest were not currently smoking (n=24, 4.2%), and this was statistically significant to admittance to the DDUs [χ^2 (1, N=568) = 476.056, $p < 0.01$].

There were no statistically significant differences across the years of admission [χ^2 (2, N=568) = 3.405, $p = 0.18$].

Nevertheless, when examining smoking by gender, the only significance noted was that there were more female individuals who were currently not smoking (O=19, E=11.9), when compared to males (O=5, E=12.1) [χ^2 (1, N=568) = 8.840, $p < 0.01$].

4.7 Clinical Data of individuals admitted to the DDUs

This section illustrates all data related to the clinical details of admissions to the DDUs across a 3-year period (between 2018 and 2020) and between genders. The data is illustrated in the form of frequencies and chi-square tests and are categorised into the subsequent groups:

Section 4.8 – Admission Details: Year of Admission, Admissions Type, Mode of Admission, Substance Abuse vs Dual Diagnosis, Psychiatric Illness.

Section 4.9 – Extent of Substance Dependence, Amount and Costs: Primary Drug Dependence, Secondary Drug Dependence, Primary Route, Daily amount (in grams) of Primary Drug, Daily amount (in grams) of Secondary Drug, Daily Cost (€) of Drug Dependence'.

Section 4.10 – Extent of Substance Dependence and Abstinence: Age of Drug Onset, Duration of Drug Dependence, Duration of Abstinence, Rehabilitation Programmes, Gambling Addiction, Family Addiction History, Parasuicide History.

Section 4.11 – Substitute Treatment and Alcohol Dependence: Methadone Substitute Treatment, Buprenorphine/Suboxone Substitute Treatment, Alcohol Dependence.

4.8 Admission Details

The subgroup 'Admission Details' includes the clinical variables Year of Admission, Type of Admission, Mode of admission, Substance Abuse vs Dual Diagnosis and Psychiatric Illness - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.8.1 Year of Admission

The variable 'Year of Admission' portrays the total number of admissions of individuals admitted to the DDUs during 2018-2020 and by each sub-year, as illustrated in Table 4.21.

Table 4.21: Admissions to the DDUs by Year of Admission against Gender

Year of Admission against Gender								
Year of Admission			**2018**	**2019**	**2020**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			191 (33.6%)	241 (42.4%)	136 (23.9%)	568 (100%)	29.137	< 0.01 (2)
Gender	**Male**	**Count**	102	118	67	287	0.955	0.62 (2)
		Expected	96.5	121.8	68.7	287.0		
	Female	**Count**	89.0	123.0	69.0	281.0		
		Expected	94.5	119.2	67.3	281.0		

When examining the years of admission, the year consisting of most admissions was 2019 (n=241, 42.4%), followed by 2018 (n=191, 33.6%) whereas the fewest admissions were in the year 2020 (n=136, 23.9%). Admittance to the DDUs by year of admission was statistically significant [χ^2 (2, N=568) = 29.137, $p < 0.01$].

As previously portrayed in Section 4.2.1 when comparing genders across the years of admission, no statistical significance was identified [χ^2 (2, N=568) = 0.955, $p = 0.62$].

4.8.2 Admission Type

The variable 'Admission Type' portrays the frequency of new admissions and readmissions across all DDU admissions, as illustrated in Table 4.22.

Table 4.22: Admissions to the DDUs by Admission Type, Year of Admission and Gender

Trends in DDU admissions of Admission Type against Year of Admission and Gender							
Admission Type			**New Admission**	**Readmission**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			131 (23.1%)	437 (76.9%)	568 (100%)	164.852	< 0.01 (1)
Year of Admission	**2018**	**Count**	51	140	191	6.151	0.05 (2)
		Expected	44.1	146.9	191.0		
	2019	**Count**	59	182	241		
		Expected	55.6	185.4	241.0		
	2020	**Count**	21	115	136		
		Expected	31.4	104.6	136.0		
Gender	**Male**	**Count**	95	192	287	32.941	< 0.01 (1)
		Expected	66.2	220.8	287.0		
	Female	**Count**	36	245	281		
		Expected	64.8	216.2	281.0		

The most common admissions were readmissions (n=437, 76.9%), while only 131 admissions (23.1%) were new admissions [χ^2 (1, N=568) = 164.852, $p < 0.01$].

Statistical significance [χ^2 (2, N=568) = 6.151, $p = 0.05$] between admission type and years of admission was reported. There was an increase in admissions in 2018 (O=51, E=44.1) and 2019 (O=59, E=55.6), as opposed to the year 2020 which saw a significant decrease in new admissions (O=21, E=31.4) and an increase in readmissions (O=115, E=104.6).

When comparing the admission type by gender, statistical significance was identified [χ^2 (1, N=568) = 32.941, $p < 0.01$]. There were more male new admissions (O=95, E=66.2), than females (O=36, E=64.8). Consequently, female patients had significantly more readmissions (O=245, E=216.2), when compared to males (O=192, E=220.8).

4.8.3 Mode of Admission

The variable 'Mode of Admission' depicted in Table 4.23 illustrates the frequency of court orders, voluntary, and involuntary admissions to the DDUs.

Table 4.23: Admissions to the DDUs by Mode of Admission, Year of Admission and Gender

Mode of Admission against Year of Admission and Gender								
Mode of Admission			**Voluntary**	**Involuntary**	**Court Order**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			373 (65.7%)	185 (32.6%)	10 (1.8%)	568 (100%)	348.13	< 0.01 (2)
Year of Admission	**2018**	**Count**	131	53	7	191	10.043	0.04 (4)
		Expected	125.4	62.2	3.4	191.0		
	2019	**Count**	149	90	2	241		
		Expected	158.3	78.5	4.2	241.0		
	2020	**Count**	93	42	1	136		
		Expected	89.3	44.3	2.4	136.0		
Gender	**Male**	**Count**	201	81	5	287	5.051	0.08 (2)
		Expected	188.5	93.5	5.1	287.0		
	Female	**Count**	172	104	5	281		
		Expected	184.5	91.5	4.9	281.0		

The modal category of mode of admissions were voluntary (n=373, 65.7%), and followed by involuntary admissions (n=185, 32.6%), court orders (n=10, 1.8%), and was statistically significant to the admissions of the DDUs [χ^2 (2, N=568) = 384.13, $p < 0.01$].

Statistical significance was reported across the years of admission and mode of admission [χ^2 (4, N=568) = 10.043, $p = 0.04$]. In the year 2019, a significant increase of involuntary admissions was reported (O=90, E=78.5), when compared to 2018 (O=53, E=62.2) and 2020 (O=42, E=44.3). Moreover, in 2020 there was an increase of voluntary admissions to the DDUs (O=93, E=89.3), when compared to 2019 (O=149, E=158.3).

When comparing genders, a significant trend identified was that were more voluntary admissions of males (O=201, E=188.5) than of females (O=172, E=184.5), however this was not statistically significant [χ^2 (2, N=568) = 5.051, $p = 0.08$].

4.8.4 Substance Abuse Disorder vs Dual Diagnosis Disorder

The variable 'Substance Abuse Disorder vs Dual Diagnosis Disorder' illustrated in Table 4.24 depicts the frequency of patients admitted with a SAD and DDD.

Table 4.24: Admission to the DDUs by Substance Abuse/Dual Diagnosis, Year of Admission and Gender

Substance Abuse/Dual Diagnosis against Year of Admission and Gender							
Substance Abuse/Dual Diagnosis			**Dual Diagnosis**	**Substance Abuse**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			397 (69.9%)	171 (30.1%)	568 (100%)	89.923	< 0.01 (1)
Year of Admission	**2018**	**Count**	135	56	191	6.094	0.05 (2)
		Expected	133.5	57.5	191.0		
	2019	**Count**	157	84	241		
		Expected	168.4	72.6	241.0		
	2020	**Count**	105	31	136		
		Expected	95.1	40.9	136.0		
Gender	**Male**	**Count**	205	82	287	0.649	0.40 (1)
		Expected	200.6	86.4	287.0		
	Female	**Count**	192	89	281		
		Expected	196.4	84.6	281.0		

The majority of DDU patients were diagnosed with a dual diagnosis disorder (n=397, 69.9%), while 171 patients (30.1%) were diagnosed as having a substance abuse disorder only, and this was statistically significant to admittance to the DDUs [χ^2 (1, N=568) = 89.923, $p < 0.01$].

In the year 2019 an increase in admissions of substance abuse individuals was identified (O=84, E=72.6), as opposed to 2020 (O=31, E=40.9). Furthermore, in 2020 there was an increase in admissions of individuals diagnosed with a dual diagnosis (O=105, E=95.1). SAD/DDD across the years of admissions were statistically significant [χ^2 (2, N=568) = 6.094, $p = 0.05$].

No statistical significance was identified between SAD/DDD and gender [χ^2 (1, N=568) =0.649, $p = 0.40$].

4.8.5 Psychiatric Illness

The variable 'Psychiatric Illness' portrayed in Table 4.25 illustrates the different types of psychiatric illness of patients admitted to the DDUs. Patients were only diagnosed with one primary diagnosis, whereas patients with a SAD only were not diagnosed with a psychiatric illness.

Table 4.25: Admissions to the DDUs by Psychiatric Illness, Year of Admission and Gender

Psychiatric Illness against Year of Admission and Gender													
Psychiatric Illness			**No Psychiatric Illness**	**Anxiety**	**Depression**	**Psychosis/ Schizophrenia**	**Bipolar**	**ADHD**	**PTSD**	**Learning Disability**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			171 (30.1%)	24 (4.2%)	128 (22.5%)	95 (16.7%)	47 (8.3%)	64 (11.3%)	28 (4.9%)	11 (1.9%)	568 (100%)	311.380	< 0.01 (7)
Year of Admission	**2018**	**Count**	56	12	44	37	10	26	5	1	191	30.073	< 0.01 (14)
		Expected	57.5	8.1	43.0	31.9	15.8	21.5	9.4	3.7	191.0		
	2019	**Count**	84	7	54	38	18	25	10	5	241		
		Expected	72.6	10.2	54.3	40.3	19.9	27.2	11.9	4.7	241.0		
	2020	**Count**	31	5	30	20	19	13	13	5	136		
		Expected	40.9	5.7	30.6	22.7	11.3	15.3	6.7	2.6	136.0		
Gender	**Male**	**Count**	82	14	69	58	25	22	9	8	287	18.601	< 0.01 (7)
		Expected	86.4	12.1	64.7	48.0	23.7	32.3	14.1	5.6	287.0		
	Female	**Count**	89	10	59	37	22	42	19	3	281		
		Expected	84.6	11.9	63.3	47.0	23.3	31.7	13.9	5.4	281.0		

The most common psychiatric illness was having a diagnosis of Depression (n=128, 22.5%), followed by Psychosis/Schizophrenia (n=95, 16.7%), Attention Deficit Hyperactivity Disorder (ADHD) (n=64, 11.3%), Bipolar Affective Disorder (BPAD) (n=47, 8.3%), Post-Traumatic Stress Disorder (PTSD) (n=28, 4.9%), Anxiety Disorder (n=24, 4.2%) and Learning Disabilities (LD) (n=11, 1.9%). Furthermore, 30.1% of the service users did not have a psychiatric illness (n=171). Consequently, psychiatric illness was statistically significant to the admissions of the DDUs [χ^2 (7, N=568) = 311.380, $p < 0.01$].

When examining psychiatric illness across the years of admissions, statistical significance was identified [χ^2 (14, N=568) = 30.073, $p < 0.01$]. The year 2020 saw a decrease in admissions of patients without a psychiatric illness (O=31, E=40.9), as opposed to 2018 (O=56, E=57.5) and 2019 (O=84, E=72.6). Conversely, the year 2020 had an increase in admission of patients suffering from BPAD (O=19, E=11.3), PTSD (O=13, E=6.7) and LD (O=5, E=2.6).

When comparing genders across psychiatric illness, statistical significances was identified [χ^2 (7, N=568) = 18.601, $p < 0.01$]. A diagnosis of psychosis/schizophrenia was more common amongst male service users (O=58, E=48.0), when compared to females (O=37, E=47.0). Moreover, there were more females diagnosed with ADHD (O=42, E=31.7) than males (O=22, E=32.3). Additionally, there were more females diagnosed with PTSD (O=19, E=13.9), when compared to males (O=9, E=14.1)

4.9 Extent of Substance Dependence, Amount and Cost

The subgroup 'Extent of Substance Dependence, Amount and Cost' includes the clinical variables Primary Drug Dependence, Secondary Drug Dependence, Primary Route, Daily amount (grams) of Primary Drug, Daily amount (grams) of Secondary Drug, and Daily Cost (€) of Drug

Dependence - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.9.1 Primary Drug Dependence

The variable 'Primary Drug Dependence' illustrates the most common primary drug dependence of patients admitted to the DDUs, as portrayed in Table 4.26.

Table 4.26: Admissions in the DDUs by Primary Drug Dependence, Year of Admission and Gender

Primary Drug Dependence against Year of Admission and Gender									
Primary Drug Dependence			**Heroin**	**Cocaine**	**Marijuana**	**Synthetic Cannabinoids**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			193 (34%)	306 (53.9%)	11 (1.9%)	58 (10.2%)	568 (100%)	378.268	< 0.01 (3)
Year of Admission	**2018**	**Count**	74	97	6	14	191	19.075	< 0.01 (6)
		Expected	64.9	102.9	3.7	19.5	191.0		
	2019	**Count**	89	119	5	28	241		
		Expected	81.9	129.8	4.7	24.6	241.0		
	2020	**Count**	30	90	0	16	136		
		Expected	46.2	73.3	2.6	13.9	136.0		
Gender	**Male**	**Count**	68	154	11	54	287	70.895	< 0.01 (3)
		Expected	97.5	154.6	5.6	29.3	287.0		
	Female	**Count**	125	152	0	4	281		
		Expected	95.5	151.4	5.4	28.7	281.0		

The most common primary drug dependence was cocaine (n=306, 53.9%), followed by heroin (n=193, 34.0%), synthetic cannabinoids (n=58, 10.2%) and marijuana (n=11, 1.9%). Admission to the DDUs by primary drug dependence was statistically significant [χ^2 (3, N=568) = 378.268, $p < 0.01$].

Across the years of admission, it was identified that cocaine admissions increased in 2020 (O=90, E=73.3) compared to 2018 (O=97, E=102.9) and 2019 (O=119, E=129.8), while conversely heroin admissions decreased (O=30, 46.2), as opposed in 2018 (O=74, E=64.9) and 2019 (O=89, E=81.9). Moreover, synthetic cannabinoids admission increased in 2019 (O=28, E=24.6) and 2020 (O=16, E=13.9), while Marijuana admissions decreased over the years (2018: O=6, E=3); (2019: O=5, E=4.7); (2020: O=0, E=2.6). Primary drug dependence was statistically significant across the years of admission. [χ^2 (6, N=568) = 19.075, $p < 0.01$].

When comparing genders, it was noted significantly more males had a primary dependence of synthetic cannabinoids (O=54, E=29.3) and marijuana (O=11, E=5.6), compared to females (O=4, E=28.7) and (O=0, E=5.4), respectively. Conversely, more females had a primary dependence of

heroin (O=125, E=95.5) when compared to males (O=68, E=97.5). Primary drug dependence was statistically significant between genders. [χ^2 (3, N=568) = 70.895, p < 0.01].

4.9.2 Secondary Drug Dependence

The variable 'Secondary Drug Dependence' illustrates the secondary drug dependence, (if any), of patients admitted to the DDUs, as displayed in Table 4.27.

Table 4.27: Admissions to the DDUs by Secondary Drug Dependence, Year of Admission and Gender

Secondary Drug Dependence against Year of Admission and Gender											
Secondary Drug Dependence			**Heroin**	**Cocaine**	**Marijuana**	**Synthetic Cannabinoids**	**None**	**Ecstasy**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			172 (30.3%)	176 (31%)	76 (13.4%)	24 (4.2%)	113 (19.9%)	7 (1.2%)	568 (100%)	274.218	< 0.01 (5)
Year of Admission	**2018**	**Count**	63	65	16	4	43	0	191	41.152	< 0.01 (10)
		Expected	57.8	59.2	25.6	8.1	38.0	2.4	191.0		
	2019	**Count**	56	83	35	19	42	6	241		
		Expected	73.0	74.7	32.2	10.2	47.9	3.0	241.0		
	2020	**Count**	53	28	25	1	28	1	136		
		Expected	41.2	42.1	18.2	5.7	27.1	1.7	136.0		
Gender	**Male**	**Count**	79	69	59	7	70	3	287	43.257	< 0.01 (5)
		Expected	86.9	88.9	38.4	12.1	57.1	3.5	287.0		
	Female	**Count**	93	107	17	17	43	4	281		
		Expected	85.1	87.1	37.6	11.9	55.9	3.5	281.0		

Across patients who had a poly-drug dependence, cocaine was also identified to be the most common drug amongst the secondary drug dependence group (n=176, 31.0%), followed closely by heroin (n=172, 30.3%), marijuana (n=76, 13.4%), synthetic cannabinoids (n=24, 4.2%) and MDMA (n=7, 1.2%). Moreover, the third most reported finding across this group was that 113 patients (19.9%) did not report having a secondary drug dependence, meaning that 455 patients (80.1%) had a poly-drug dependence (more than one drug dependence). Admission to the DDUs by secondary drug dependence was also statistically significant [χ^2 (5, N=568) = 274.218, p < 0.01].

Statistical significance across the years of admission and secondary drug dependence was reported [χ^2 (10, N=568) = 41.152, p < 0.01]. In 2018 there was an increase in secondary dependence of heroin (O=63, E=57.8) and cocaine (O=65, E=59.2), as opposed to 2019 (O=56, E=73.0). Conversely, secondary dependence of cocaine admissions also increased in 2019 (O=83, E=74.7). In 2020, secondary dependence of heroin increased once again (O=53, E=41.2) as opposed to cocaine, which decreased significantly (O=28, E=42.1).

Statistical significance was identified across secondary drug dependence and gender [χ^2 (5, N=568) = 43.257, p < 0.01]. Significantly more females had a secondary dependence on heroin (O=93, E=85.1) and cocaine (O=107, E=87.1) as opposed to males (O=79, E=86.9) and (O=69, E=88.9), respectively, Conversely, more males had a secondary dependence of Marijuana (O=59, E=38.4) when compared to females (O=17, E=37.6). Additionally, there were more females who had a secondary dependence on synthetic cannabinoids (O=17, E=11.9) than males (O=7, E=21). Moreover, more males did not have a secondary drug dependence (n=70, E=57.1), when compared to females (O=43, E=55.9).

4.9.3 Primary Route of Drug

The variable 'Primary Route of Drug' portrays the route of drug used for the primary dependence drug, as illustrated in Table 4.28.

Table 4.28: Admissions to the DDUs by Route of Drug, Year of Admission and Gender

Primary Route of Drug against Year of Admission and Gender								
Primary Route of Drug			**Intravenous (IV)**	**Inhaling (Smoking, Inhaling)**	**Snorting**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			167 (29.6%)	342 (60.5%)	56 (9.9%)	565* (100%)	220.782	< 0.01 (2)
Year of Admission	**2018**	**Count**	68	108	15	191	10.412	0.03 (4)
		Expected	56.5	115.6	18.9	191.0		
	2019	**Count**	73	142	26	241		
		Expected	71.2	145.9	23.9	241.0		
	2020	**Count**	26	92	15	133		
		Expected	39.3	80.5	13.2	133.0		
Gender	**Male**	**Count**	90	172	25	287	1.524	0.50 (2)
		Expected	84.8	173.7	28.4	287.0		
	Female	**Count**	77	170	31	278		
		Expected	82.2	168.3	27.6	278.0		

**3 were excluded due to missing data relating to the variable.*

The most common route of consuming drugs was through inhalation (i.e., smoking or inhaling) (n=342, 60.5%), followed by intravenous drug use (IVDU) (n=167, 29.6%) and insufflation (snorting) (n=56, 9.9%) [χ^2 (2, N=565) = 220.782, p < 0.01].

When comparing the route of drug across the years of admission, it was identified that IVDU was decreasing across the years (2018: O=68, E=56.5; 2019: O=73, E=71.2; 2020: O=26, E=39.3), while conversely inhalation was increasing (2018: O=108, E=115.6; 2019: O=142, E=145.9; 2020: O=92, E=80.5) and this was statistically significant [χ^2 (4, N=565) = 10.412, p = 0.03].

Conversely, there was no statistical significance in the route of drug by gender [χ^2 (2, N=565) = 1.524, p = 0.50].

4.9.4 Daily amount (in grams) of Primary Drug

The variable 'Daily amount (in grams) of Primary Drug' is divided into 6 categories: 0.1g-0.5g; 0.6-1.0g; 1.1-1.5g; 1.6-2.0g; 2.1-3.0g and 3.0g+ and illustrated in Table 4.29. Patients with a daily drug use of 0.1g-0.5g or 0.6-1.0g were considered to have a lower drug dependence, while a daily use of 1.1-1.5g and 1.6-2.0g was considered to be a moderate drug dependence, while those with a daily use of 2.1-3.0g and 3.0g+ were considered to have a severe drug dependence.

Table 4.29: Admissions to the DDUs by Amount of Primary Drug, Year of Admission and Gender

Daily Amount of Primary Drug (grams) against Year of Admission and Gender											
Amount of Primary Drug (grams)			**0.1-0.5g**	**0.6-1.0g**	**1.1-1.5g**	**1.6-2.0g**	**2.1-3.0g**	**3+ g**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			100 (17.6%)	69 (12.1%)	91 (16%)	87 (15.3%)	59 (10.4%)	162 (28.5%)	568 (100%)	69.352	< 0.01 (5)
Year of Admission	**2018**	**Count**	41	22	36	29	18	45	191	12.512	0.25 (10)
		Expected	33.6	23.2	30.6	29.3	19.8	54.5	191.0		
	2019	**Count**	35	26	42	39	26	73	241		
		Expected	42.4	29.3	38.6	36.9	25.0	68.7	241.0		
	2020	**Count**	24	21	13	19	15	44	136		
		Expected	23.9	16.5	21.8	20.8	14.1	38.8	136.0		
Gender	**Male**	**Count**	60	35	46	52	37	57	287	25.323	< 0.01 (5)
		Expected	50.5	34.9	46.0	44.0	29.8	81.9	287.0		
	Female	**Count**	40	34	45	35	22	105	281		
		Expected	49.5	34.1	45.0	43.0	29.2	80.1	281.0		

The majority of patients reported to use over 3.0 grams (n=162, 28.5%), followed by 0.1g-0.5g (n=100, 17.6%) and 1.1g-1.5g (n=91, 16.0%). Consequently, the amount of primary drug use was statistically significant to the admissions of the DDUs [χ^2 (5, N=568) = 69.352, p < 0.01].

There was no statistical significance in the amount of primary drug use across the years of admission [χ^2 (10, N=568) = 12.512, p = 0.25].

When comparing the amount of daily drug use between genders, it was found that significantly more females used over 3 grams (O=105, E=80.1), when compared to males (O=57, E=81.9), and this cross-tabulation was statistically significant [χ^2 (5, N=568) = 25.323, p < 0.01].

4.9.5 Daily amount (in grams) of Secondary Drug

The variable 'Daily amount (in grams) of Secondary Drug' as presented in Table 4.30 illustrates the different amount of grams used on the secondary drug dependence, (if any).

Table 4.30: Admissions to the DDUs by Amount of Secondary Drug, Year of Admission and Gender

Daily amount of Secondary Drug (grams) against Year of Admission and Gender											
Amount of Secondary Drug (grams)			**0.0-0.5g**	**0.6-1.0g**	**1.1-1.5g**	**1.6-2.0g**	**2.1-3.0g**	**3+ g**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			318 (56.7%)	79 (14.1%)	67 (11.9%)	40 (7.1%)	19 (3.4%)	38 (6.8%)	561* (100%)	671.717	< 0.01 (5)
Year of Admission	**2018**	**Count**	118	30	17	12	7	7	191	16.742	0.08 (10)
		Expected	108.3	26.9	22.8	13.6	6.5	12.9	191.0		
	2019	**Count**	119	30	36	17	11	22	235		
		Expected	133.2	33.1	28.1	16.8	8.0	15.9	235.0		
	2020	**Count**	81	19	14	11	1	9	135		
		Expected	76.5	19.0	16.1	9.6	4.6	9.1	135.0		
Gender	**Male**	**Count**	169	51	35	16	7	6	284	28.711	< 0.01 (5)
		Expected	161.0	40.0	33.9	20.2	9.6	19.2	284.0		
	Female	**Count**	149	28	32	24	12	32	277		
		Expected	157.0	39.0	33.1	19.8	9.4	18.8	277.0		

**7 were excluded due to missing data relating to the variable.*

The daily amount (grams) of secondary drug dependence was also statistically significant to admittance of DDU patients [χ^2 (5, N=561) = 67.717, p < 0.01]. The majority of patients used 0 to 0.5 grams (n=318, 56.7%), followed by 0.6g-1.0g (n=79, 14.1%) and 1.1g-1.5g (n=67, 11.9%).

There was no statistical significance between the amount of secondary drug and years of admission [χ^2 (10, N=561) = 16.742, p = 0.08].

Nevertheless, when looking at the amount of secondary drug use and genders, it was identified that significantly more females used over 3 grams (O=32, E=18.8), when compared to males (O=6, E=19.2), and was statistically significant [χ^2 (5, N=561) = 28.711, p < 0.01].

4.9.6 Daily Cost (€) of Drug Dependence

The variable 'Daily Cost (€) of Drug Dependence' as presented in Table 4.31 illustrates the different and daily expenditure cost on drugs of patients admitted to the DDUs. The subcategories 'Less than €10' and '€10-€30 euros' displays a low dependence, whereas €31-€50 and €51-€100 displays a medium-high dependence, while €100+ displays a severe drug dependence.

Table 4.31: Admissions to the DDUs by Cost of Drug Dependence, Year of Admission and Gender

Daily Cost (€) of Drug Dependence against Year of Admission and Gender										
Daily Cost (€) of Drug Dependence			**Less than €10**	**€10-€30**	**€31-€50**	**€51-€100**	**€100+**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			21 (3.7%)	99 (17.4%)	106 (18.7%)	92 (16.2%)	250 (44%)	568 (100%)	245.75	< 0.01 (4)
Year of Admission	**2018**	**Count**	5	37	36	39	74	191	12.069	0.15 (8)
		Expected	7.1	33.3	35.6	30.9	84.1	191.0		
	2019	**Count**	7	43	44	38	109	241		
		Expected	8.9	42.0	45.0	39.0	106.1	241.0		
	2020	**Count**	9	19	26	15	67	136		
		Expected	5.0	23.7	25.4	22.0	59.9	136.0		
Gender	**Male**	**Count**	16	66	48	67	90	287	56.422	< 0.01 (4)
		Expected	10.6	50.0	53.6	46.5	126.3	287.0		
	Female	**Count**	5	33	58	25	160	281		
		Expected	10.4	49.0	52.4	45.5	123.7	281.0		

The majority of patients (n=250, 44.0%) used over €100 daily, followed by €31-€50 (n=106, 18.7%), €10-€30 (n=99, 17.4%) and €51-€100 (n=92, 16.2%), while only 3.7% (n=21) reported to use less than €10. Consequently, the daily cost of drug dependence was statistically significant to admissions of DDU patients [χ^2 (4, N=568) = 245.75, p < 0.01].

Daily cost of drugs across the years of admission was not statistically significant [χ^2 (8, N=568) = 12.069, p = 0.15].

When comparing daily cost of drugs between genders, statistical significance was identified [χ^2 (4, N=568) = 56.422, p < 0.01], and significantly more females reported to use over €100 daily (O=160, E=123.7), when compared to males (O=90, E=126.3).

4.10 Extent of Substance Dependence and Abstinence

The subgroup 'Extent of Substance Dependence and Abstinence' include the clinical variables Age of Drug Onset, Duration of Drug Dependence, Duration of Abstinence, Rehabilitation Programmes, Gambling Addiction, Family Addiction History and Parasuicide History - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.10.1 Age of Drug Onset

The variable 'Age of Drug Onset' as presented in Table 4.32 illustrates the different ages in which DDU patients commenced using drugs.

Table 4.32: Admissions to the DDUs by Age of Drug Onset, Year of Admission and Gender

Age of Drug Onset against Year of Admission and Gender											
Age of Drug Onset			**Younger than 12**	**12-15**	**16-20**	**21-29**	**30-39**	**40+**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			34 (6%)	188 (33.2%)	218 (38.4%)	85 (15%)	19 (3.4%)	23 (4.1%)	567* (100%)	408.016	< 0.01 (5)
Year of Admission	**2018**	**Count**	12	56	77	36	7	3	191	52.715	< 0.01 (10)
		Expected	11.5	63.3	73.4	28.6	6.4	7.7	191.0		
	2019	**Count**	15	88	84	41	10	2	240		
		Expected	14.4	79.6	92.3	36.0	8.0	9.7	240.0		
	2020	**Count**	7	44	57	8	2	18	136		
		Expected	8.2	45.1	52.3	20.4	4.6	5.5	136.0		
Gender	**Male**	**Count**	10	103	88	55	13	17	286	30.731	< 0.01 (5)
		Expected	17.1	94.8	110.0	42.9	9.6	11.6	286.0		
	Female	**Count**	24	85	130	30	6	6	281		
		Expected	16.9	93.2	108.0	42.1	9.4	11.4	281.0		

**1 was excluded due to missing data relating to the variable.*

The most popular age to commence drugs was between ages 16-20 (n=218, 38.4%), followed by 12-15 years old (n=188, 33.2%), 21-29 years old (n=85, 15.0%). The least popular was to commence drugs during ages 30-39 (n=19, 3.4%). Consequently, age of drug onset was statistically significant to admittance to the DDUs [χ^2 (5, N=567) = 408.016, $p < 0.01$].

When comparing age of drug onset across the years of admission it was identified that in 2020 there was an increase of admissions of patients who commenced drugs at the age over 40 (O=18, E=5.5), and this was statistically significant [χ^2 (10, N=567) = 52.715, $p < 0.01$].

When comparing age of drug onset between genders, statistical significance was reported [χ^2 (5, N=567) = 30.731, $p < 0.01$]. More male patients commenced drugs between the ages of 12-15 (O=103, E=94.8), when compared to females (O=85, E=93.2). Most female patients commenced drugs at ages 16-20 (O=130, E=108), compared to males (O=88, E=110). Moreover, there were more male patients with a drug onset of 30-39 years (O=13, E=9.6) and 40 years and over (O=17, E=11.6), compared to females (O=6, E=9.4) and (O=6, E=11.4), respectively. Another significant difference was that more females that commenced drugs at an age of 12 or younger (O=24, E=16.9), compared to males (O=10, E=17.1).

4.10.2 Duration of Drug Dependence

The variable 'Duration of Drug Dependence' as presented in Table 4.33, illustrates the different drug durations (in years) of DDU patients.

Table 4.33: Admission to the DDUs by Duration of Drug Dependence, Year of Admission and Gender

Duration of Drug Dependence against Year of Admission and Gender											
Duration of Drug Dependence			**Less than 3 years**	**3-6 years**	**7-10 years**	**11-15 years**	**16-20 years**	**20+ years**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			56 (9.9%)	64 (11.3%)	95 (16.8%)	91 (16.1%)	63 (11.1%)	197 (34.8%)	566* (100%)	147.597	< 0.01 (5)
Year of Admission	**2018**	**Count**	14	17	31	36	34	59	191	25.819	< 0.01 (10)
		Expected	18.9	21.6	32.1	30.7	21.3	66.5	191.0		
	2019	**Count**	23	35	46	37	16	82	239		
		Expected	23.6	27.0	40.1	38.4	26.6	83.2	239.0		
	2020	**Count**	19	12	18	18	13	56	136		
		Expected	13.5	15.4	22.8	21.9	15.1	47.3	136.0		
Gender	**Male**	**Count**	39	35	34	38	37	102	285	21.494	< 0.01 (5)
		Expected	28.2	32.2	47.8	45.8	31.7	99.2	285.0		
	Female	**Count**	17	29	61	53	26	95	281		
		Expected	27.8	31.8	47.2	45.2	31.3	97.8	281.0		

**2 were excluded due to missing data relating to the variable.*

The duration of drug dependence was statistically significant to admittance to the DDUs [χ^2 (5, N=566) = 147.597, $p < 0.01$]. The majority of patients had a drug dependence for over 20 years (n=197, 34.8%), followed by 7-10 years (n=95, 16.8%) and 11-15 years (n=91, 16.1%). The least popular was having a drug dependence for less than 3 years (n=56, 9.9%).

Across the years of admission, the duration of drug dependence was statistically significant [χ^2 (10, N=566) = 25.819, $p < 0.01$]. In the year 2020, admissions of patients who had been abusing from drugs for less than 3 years were higher than expected (O=19, E=13.5), where conversely, admissions from all the other categories were lower than expected for the year 2020, except for those that had a drug dependence of over 20+ years (O=56, E=47.3).

When comparing genders across duration of drug dependence, statistical significance was identified [χ^2 (5, N=566) = 21.494, $p < 0.01$]. There were more male patients who had a drug duration of less than 3 years (O=39, E=28.2), compared to females (O=17, E=27.8). Another significant difference was that there were more female patients who had been using drugs for 7-10 years (O=61, E=47.2) and 11-15 years (O=53, E=45.2), compared to males (O=34, E=47.8) and (O=38, E=45.8), respectively. Nevertheless, there were more males with a drug duration of 16-20 years (O=37, E=31.7) and over 20 years (O=102, E=99.2), when compared to females (O=26, E=31.3) and (O=95, E=97.8), respectively.

4.10.3 Duration of Abstinence

The variable 'Duration of Abstinence' as presented in Table 4.34, illustrates the longest period of abstinence from drugs of DDU patients.

Table 4.34: Admissions to the DDUs by Duration of Abstinence, Year of Admission and Gender

Duration of Abstinence against Year of Admission and Gender												
Duration of Abstinence			**Never Abstinent**	**Less than a month**	**1-3 months**	**4-6 months**	**7-12 months**	**1-3 years**	**4+ years**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			64 (11.6%)	70 (12.7%)	123 (22.3%)	47 (8.5%)	87 (15.8%)	93 (16.8%)	68 (12.3%)	552* (100%)	46.246	< 0.01 (6)
Year of Admission	**2018**	**Count**	18	33	33	19	30	25	27	185	31.648	< 0.01 (12)
		Expected	21.4	23.5	41.2	15.8	29.2	31.2	22.8	185.0		
	2019	**Count**	34	23	66	18	39	36	17	233		
		Expected	27.0	29.5	51.9	19.8	36.7	39.3	28.7	233.0		
	2020	**Count**	12	14	24	10	18	32	24	134		
		Expected	15.5	17.0	29.9	11.4	21.1	22.6	16.5	134.0		
Gender	**Male**	**Count**	31	29	58	26	32	52	45	273	17.486	< 0.01 (6)
		Expected	31.7	34.6	60.8	23.2	43.0	46.0	33.6	273.0		
	Female	**Count**	33	41	65	21	55	41	23	279		
		Expected	32.3	35.4	62.2	23.8	44.0	47.0	34.4	279.0		

**16 were excluded due to missing data relating to the variable.*

The duration of abstinence was statistically significant to the admittance of the DDUs [χ^2 (6, N=552) = 46.246, $p < 0.01$]. Most patients were abstinent from drugs for a maximum of 1-3 months (n=123, 22.3%), followed by 1-3 years abstinence (n=93, 16.8%), 7-12 months (n=87, 15.8%), less than a month (n=70, 12.7%), 4 years and over (n=68, 12.3%) and 4-6 months (8.5%). Moreover, 11.6% of the population (n=64) reported that they had never been abstinent from drugs.

When examining the years of admission with duration of abstinence, statistical significance was identified [χ^2 (12, N=552) = 31.648, $p < 0.01$]. The year 2020 had a significantly greater number of admissions of patients who had been abstinent for 1-3 years (O=32, E=22.6), and 4+ years (O=24, E=16.5)

When examining duration of abstinence by gender, statistical significance was identified [χ^2 (6, N=552) = 17.486, $p < 0.01$]. Significantly more males were abstinent for 1-3 years (O=52, E=46.0) and 4+ years (O=45, E=33.6), compared to females (O=41, E=47) and (O=23, E=34.4), respectively.

4.10.4 Rehabilitation Programmes

The variable 'Rehabilitation Programmes' as presented in Table 4.35, illustrates the frequency of DDU patients who attended an inpatient rehabilitation, if any.

Table 4.35: Admissions to the DDUs by Rehabilitation Programmes, Year of Admission and Gender

Rehabilitation Programmes against Year of Admission and Gender										
Rehabilitation Programmes			**None**	**1**	**2**	**3**	**4+**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			167 (30.2%)	178 (32.2%)	71 (12.8%)	59 (10.7%)	78 (14.1%)	553* (100%)	117.696	< 0.01 (4)
Year of Admission	**2018**	**Count**	48	55	34	19	28	184	24.051	< 0.01 (8)
		Expected	55.6	59.2	23.6	19.6	26.0	184.0		
	2019	**Count**	85	67	28	29	25	234		
		Expected	70.7	75.3	30.0	25.0	33.0	234.0		
	2020	**Count**	34	56	9	11	25	135		
		Expected	40.8	43.5	17.3	14.4	19.0	135.0		
Gender	**Male**	**Count**	97	68	38	25	49	277	21.127	< 0.01 (4)
		Expected	83.7	89.2	35.6	29.6	39.1	277.0		
	Female	**Count**	70	110	33	34	29	276		
		Expected	83.3	88.8	35.4	29.4	38.9	276.0		

**15 were excluded due to missing data relating to the variable.*

Most patients attended one inpatient rehabilitation programme (n=178, 32.2%), closely followed by those who had never enrolled in rehabilitation (n=167, 30.2%). Moreover, 14.1% (n=78) reported to have enrolled in rehabilitation 4+ times, followed by those who enrolled in rehab twice (n=71, 12.8%), and least were those who enrolled in rehab three times (n=59, 10.7%). Consequently, commencing a rehab programme was statistically significance to admittance to the DDUs [χ^2 (4, N=553) = 117.696, $p < 0.01$].

When examining the number of rehabilitations across years of admission statistical significance was reported [χ^2 (8, N=553) = 24.051, $p < 0.01$]. In the year 2020, admission of patients who had never enrolled in rehabilitation decreased (O=34, E=40.8), while conversely, admissions of patients who had enrolled to rehab 4+ times increased (O=25, E=19.0).

When comparing the number of rehabilitations between genders, more male patients had never enrolled to rehabilitation (O=97, E=83.7) or attended four rehabs or more (O=49, E=39.1), whereas more females enrolled in one rehab (O=110, E=88.8), compared to males (O=68, E=89.2). This cross-tabulation was statistically significant [χ^2 (4, N=553) = 21.127, $p < 0.01$].

4.10.5 Gambling Addiction

The variable 'Gambling Addiction' as presented in Table 4.36, illustrates the frequency of DDU patients who have a gambling addiction.

Table 4.36: Admissions to the DDUs by Gambling Addiction, Year of Admission and Gender

Gambling Addiction against Year of Admission and Gender							
Gambling Addiction			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			38 (6.7%)	530 (93.3%)	568 (100%)	426.169	< 0.01 (1)
Year of Admission	**2018**	**Count**	11	180	191	0.412	0.81 (2)
		Expected	12.8	178.2	191.0		
	2019	**Count**	17	224	241		
		Expected	16.1	224.9	241.0		
	2020	**Count**	10	126	136		
		Expected	9.1	126.9	136.0		
Gender	**Male**	**Count**	28	259	287	8.736	< 0.01 (1)
		Expected	19.2	267.8	287.0		
	Female	**Count**	10	271	281		
		Expected	18.8	262.2	281.0		

The significant majority reported that they did not have a gambling addiction (n=530, 93.3), and therefore was not a contributing factor leading to admissions to the DDUs [χ^2 (1, N=568) = 426.169, $p < 0.01$].

There were no significant differences identified in gambling addiction across the years of admission [χ^2 (2, N=568) = 0.412, $p = 0.81$].

When analysing gambling addiction between genders, more male patients had a gambling addiction (O=28, E=19.2), when compared to females (O=10, E=18.8), and this was statistically significant [χ^2 (1, N=568) = 8.736, $p < 0.01$].

4.10.6 Family Addiction History

The variable 'Family Addiction History' as presented in Table 4.37, illustrates the frequency of patients who lived with a family member who also had a history of addiction during their lifetime.

Table 4.37: Admission to the DDUs by Family Addiction History, Year of Admission and Gender

Family Addiction History against Year of Admission and Gender							
Family Addiction History			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			169 (31.2%)	372 (68.8%)	541 (100%)	76.172	< 0.01 (1)
Year of Admission	**2018**	**Count**	51	138	189	2.480	0.29 (2)
		Expected	59.0	130.0	189.0		
	2019	**Count**	74	149	223		
		Expected	69.7	153.3	223.0		
	2020	**Count**	44	85	129		
		Expected	40.3	88.7	129.0		
Gender	**Male**	**Count**	88	194	282	0.000	0.99 (1)
		Expected	88.1	193.9	282.0		
	Female	**Count**	81	178	259		
		Expected	80.9	178.1	259.0		

**27 were excluded due to missing data relating to the variable.*

Most patients reported that did not have a family member with a history of addiction (n=372, 68.8%), and this was statistically significant [χ^2 (1, N=541) = 76.172, $p < 0.01$].

There were no statistical significances when comparing history of family addiction across the years of admission [χ^2 (2, N=541) = 2.480, $p = 0.29$] or gender [χ^2 (1, N=541) = 0.000, $p = 0.99$].

4.10.7 Parasuicide History

The variable 'Parasuicide History' as presented in Table 4.38, illustrates the frequency of Parasuicide. Patients were considered to have a history of suicide or parasuicide if they had reported to have ever attempted suicide with the suicidal intent or overdosed on substances without suicidal intent.

Table 4.38: Admissions to the DDUs by Parasuicide History, Year of Admission and Gender

Parasuicide History against Year of Admission and Gender							
Parasuicide History			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			322 (56.7%)	246 (43.3%)	568 (100%)	10.169	< 0.01 (1)
Year of Admission	**2018**	**Count**	110	81	191	2.746	0.25 (2)
		Expected	108.3	82.7	191.0		
	2019	**Count**	128	113	241		
		Expected	136.6	104.4	241.0		
	2020	**Count**	84	52	136		
		Expected	77.1	58.9	136.0		
Gender	**Male**	**Count**	150	137	287	4.627	0.03 (1)
		Expected	162.7	124.3	287.0		
	Female	**Count**	172	109	281		
		Expected	159.3	121.7	281.0		

Most patients had a history of parasuicide (n=322, 56.7%) and this was statistically significant [χ^2 (1, N=568) = 10.169, $p < 0.01$]

There was no statistical significance in parasuicide history across the years of admission [χ^2 (2, N=568) = 2.746, $p = 0.25$].

When examining parasuicide between genders, it was identified that more female individuals had a history of parasuicide (O=172, E=159.3), when compared to males (O=150, E=162.7), and this was statistically significant [χ^2 (1, N=568) = 4.627, $p = 0.03$].

4.11 Substitute Treatment and Alcohol Dependence

The subgroup 'Substitute Treatment and Alcohol Dependence' includes the clinical variables Methadone, Buprenorphine/Suboxone, and Alcohol Dependence - and their results are illustrated individually in this chapter. As part of the present author's objective within this research study, discrepancies based across the years of admission and genders are also analysed.

4.11.1 Methadone

The variable 'Methadone' as presented in Table 4.39, illustrates the frequency of patients who were on Methadone treatment on admission.

Table 4.39: Admission to the DDUs by Methadone Treatment, Year of Admission and Gender

Methadone Treatment against Year of Admission and Gender							
Methadone			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			251 (44.2%)	317 (55.8%)	568 (100%)	7.669	< 0.01 (1)
Year of Admission	**2018**	**Count**	86	105	191	0.378	0.83 (2)
		Expected	84.4	106.6	191.0		
	2019	**Count**	108	133	241		
		Expected	106.5	134.5	241.0		
	2020	**Count**	57	79	136		
		Expected	60.1	75.9	136.0		
Gender	**Male**	**Count**	141	146	287	5.738	0.02 (1)
		Expected	126.8	160.2	287.0		
	Female	**Count**	110	171	281		
		Expected	124.2	156.8	281.0		

The majority of service users were not on Methadone (n=317, 55.8%) and this was statistically significant [χ^2 (1, N=568) = 7.669, $p < 0.01$].

There was no statistical significance in methadone treatment across the years of admission [χ^2 (2, N=568) = 0.378, $p = 0.83$].

When examining methadone treatment by gender, a greater number of males reported to be on Methadone (O=141, E=126.8), when compared to females (O=110, E=124.2), and this was statistically significant [χ^2 (1, N=568) = 5.738, p = 0.02].

4.11.2 Buprenorphine/Suboxone

The variable 'Buprenorphine/Suboxone' as presented in Table 4.40, illustrates the frequency of patients who were on Buprenorphine/Suboxone treatment on admission.

Table 4.40: Admission to the DDUs by Buprenorphine/Suboxone, Year of Admission and Gender

Buprenorphine/Suboxone Treatment against Year of Admission and Gender							
Buprenorphine/Suboxone			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			81 (14.3%)	487 (85.7%)	568 (100%)	290.204	< 0.01 (1)
Year of Admission	**2018**	**Count**	29	162	191	3.865	0.15 (2)
		Expected	27.2	163.8	191.0		
	2019	**Count**	27	214	241		
		Expected	34.4	206.6	241.0		
	2020	**Count**	25	111	136		
		Expected	19.4	116.6	136.0		
Gender	**Male**	**Count**	21	266	287	22.875	< 0.01 (1)
		Expected	40.9	246.1	287.0		
	Female	**Count**	60	221	281		
		Expected	40.1	240.9	281.0		

Only 81 patients (14.3%) reported to be on buprenorphine/suboxone treatment, whereas the majority were not on buprenorphine/suboxone treatment (n=487, 85.7%), which was statistically significant [χ^2 (1, N=568) = 290.204, p < 0.01].

There was no statistical significance between buprenorphine/suboxone across the years of admission [χ^2 (2, N=568) = 3.865, p = 0.15].

When examining buprenorphine/suboxone treatment between genders, it was identified that significantly more females were on buprenorphine/suboxone (O=60, E=40.1), when compared to males (O=21, E=40.9), and this was statistically significant [χ^2 (1, N=568) = 22.875, p < 0.01].

4.11.3 Alcohol Dependence

The variable 'Alcohol Dependence' as presented in Table 4.41, illustrates the frequency of patients who also had a comorbid alcohol dependence.

Table 4.41: Admission to the DDUs by Alcohol Dependence, Year of Admission and Gender

Alcohol Dependence against Year of Admission and Gender							
Alcohol Dependence			**Yes**	**No**	**Total**	**χ^2**	**Sig (df)**
Total Distribution (%)			309 (54.5%)	258 (45.5%)	567* (100%)	4.587	0.03 (1)
Year of Admission	**2018**	**Count**	95	95	190	3.149	0.21 (2)
		Expected	103.5	86.5	190.0		
	2019	**Count**	141	100	241		
		Expected	131.3	109.7	241.0		
	2020	**Count**	73	63	136		
		Expected	74.1	61.9	136.0		
Gender	**Male**	**Count**	131	156	287	18.368	< 0.01 (1)
		Expected	156.4	130.6	287.0		
	Female	**Count**	178	102	280		
		Expected	152.6	127.4	280.0		

**1 was excluded due to missing data relating to the variable.*

The majority of patients 54.5% (n=309) reported to also have a comorbid alcohol dependence, and this was statistically significant [χ^2 (1, N=567) = 4.587, p = 0.03].

There was no statistical significance between alcohol dependence and years of admission [χ^2 (2, N=567) = 3.149, p = 0.21].

When analysing alcohol dependence between genders, it was identified that significantly more females had a comorbid alcohol dependence (O=178, E=152.6), when compared to males (O=131, E=156.4), and this was statistically significant [χ^2 (1, N=567) = 18.368, p < 0.01].

4.12 Conclusion

This chapter illustrated the demographic, socioeconomic and clinical details pertaining to the admissions of both DDUs. Moreover, these findings were also analysed across the years of admission and between genders. The consequent chapter provides an extensive discussion of these findings in relation to the literature available.

Chapter 5

Discussion

5 Discussion

5.1 Introduction

This chapter provides a discussion of the findings in context to the existing literature examined in this dissertation. The aim of this study was to examine the potential promoters of demographic, socioeconomic and clinical trends which relate to the admissions of adults to the DDUs. Moreover, the study also explored whether the variables of DDU admissions vary between the MDDU and FDDU. Consequently, the following sections provide a discussion of the results obtained, together with comparing and contrasting the differences in trends across the years 2018-2020, using the existing literature.

Nevertheless, considering the fact that a descriptive content analytic approach was adopted in this study, the present researcher also used the existing literature available to compare it with the findings of this study, so as to produce a more extensive and thorough discussion. As pointed out in previous chapters, the current literature has not examined all the variables which further contributed to this area. Moreover, to the author's knowledge, this is the first study of its kind locally which has gathered all the data pertaining to the admissions from 2018 to 2020. Nonetheless, this chapter discusses all findings and identified trends, and compares them to the relevant data extracted from the selected literature.

5.2 Admissions to the DDUs

The following section provides a comprehensible discussion of each demographic, socioeconomic and clinical finding from 568 admissions to the DDUs between 2018 and 2020.

5.2.1 Gender

The majority of patients admitted to the DDUs between 2018 and 2020 were males (n=287, 50.5%) with 49.5% being females (n=281), however this majority was extremely marginal and not significant. Nevertheless, this finding is dissimilar to that reported in the extant literature (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; Mowbray et al., 1997; Mueser et al., 2000; Ponizovsky et al., 2015; Rush & Koegl, 2008; Sepehrmanesh et al., 2014; Temmingh et al., 2020) and national local reports (EMCDDA, 2019; Cachia 2020), which reported that male dual diagnosis admissions were 2-4 times more common than female admissions. A possible contributing factor to this finding was that apart from the DDUs, other non-designated DD wards [such as Male Ward 8B (MW8B)] were taking the overspill of MDDU patients. Corroborating this hypothesis, Cachia (2017) states that MW8B was holding around 12-19 DD patients on average per day, thus concealing the possibility that there were more dual diagnosis males than females being admitted to MCH, however these could not to be admitted to the MDDU due to limited bed space.

5.2.2 Age

The present study reported that being aged between 31-35 was the modal age category for admission (n=125, 22.0%), however this was closely followed by age 36-40 (n=122, 21.5%), 25-30 (n=119, 21.0%), 18-24 (n=87, 15.3%), and 41-45 (n=70, 12.3%), while the least common age group was 46+ (n=45, 7.9%). Conversely, extant literature has reported a disparity amongst the most common age of DD patients, with the most common age groups indicated in brackets: (Castaño Pérez et al., (2017): 18–24-year-olds); (Charzynska et al., (2011): 35–65-year-olds); (Temmingh et al., (2020): 18–29-year-olds). Moreover, the local national annual report by Cachia (2020), reported that the 30-44 age group (50.4%) was most common.

From the findings of the present study, even though the 31 to 35-year-old age group was reported to be the most common modal category (22%), this was only marginal as the groups aged 36-40 (21.5%) and 25-30 (21%) were also almost equal to the modal group. If one had to group these three categories together, being aged between 25-40 would account to 64.5% of all admission. Cachia (2020) reported that patients aged 18-44 accounted for a significant majority (80.3%) of DD admissions, while similarly Ponizovsky et al. (2015) reported that the 15-44 age group comprised 87.7% of all admissions. These findings were in line with this research study which reported that the age group 18–45 accounted for 92.1% of all admissions.

5.2.3 Nationality

The absolute majority (90.5%) of admissions were Maltese nationals, however a notable 9.5% were non-nationals. Conventionally, migrants and foreigners are known to suffer from emotional distress when post-migrating due to uncertainty about their migration status, unemployment, underemployment, loss of social, family and community support, difficulty in language learning, acculturation, stress, social exclusion, and discrimination (Kirmayer et al., 2011). These psychosocial stressors in return encourage substance abuse as a method to cope with anxiety, depression, and trauma (Patterson et al., 2013; Vasquez et al., 2011; Walsh et al., 2014).

When comparing this finding to the selected literature, it was noted that only Ponizovsky et al., (2015) reported about admissions of the national versus non-national population, who reported double the incidence of non-national service users (18.1%), compared to this study (9.5%).

5.2.4 Region

The present study indicated that the highest percentage of service users came from the Southern Harbour (39.5%), followed by the Northern Harbour (30%). The above findings are quite intriguing, especially when considering the fact that the Southern Harbour has around half the population number (81,582) of the Northern Harbour (151,664) (NSO, 2019). Moreover, these findings are in line with other local studies which reported that the Southern Harbour had the

highest prevalence of socioeconomic problems, early school leavers (Gatt, 2012) and unemployment (Debono, 2013). The NSO (2014) reported that the lowest rates of employment were in the Southern Harbour region, as opposed to the Northern Harbour which was amongst the highest across all districts. Boardman et al., (2001) identified that patients who come from disadvantaged neighbourhoods were at an increased risk of exposure to substance abuse, thus increasing the probability of hospitalisation. These findings are also in line with the national report from the NSO (2019) and the National Report on the Drug Situation in Malta (Government of Malta, 2019), who identified higher rates of substance abuse in the Southern Harbour.

5.2.5 Marital Status and Relationship Breakups

The majority of individuals admitted to the DDUs reported that they were currently 'Single' (79.6%), which is in line with extant literature (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015; Rush & Koegl, 2008; Temmingh et al., 2020). Furthermore, only 6.9% of service users were married, while almost double this amount (13.6%) had been previously married (separated, divorced, or widowed). When comparing these findings with the latest national census by the NSO (2014) "Census of Population and Housing, 2011", it was reported that the majority (56.2%) of the local population were married, which is eight times more than that reported in this study. Additionally, the NSO (2014) reported that 32.5% of the population were single, thus DD patients were two times more likely to be single. Moreover, 11.3% of the local population were previously married, which is similar to the finding from this research study (13.6%). From the research study, one can hypothesize that being married was a protective factor against admission, while being single was a contributing factor for admission, as married couples could possibly have had better family networks and support structure systems compared to single individuals.

This study also investigated whether patients had gone through a relationship breakup a year prior to admission, in order to determine whether this could have been a potential contributor to relapse and admission. The majority of patients (53.3%) reported to have gone through a relationship breakup, which is a considerable finding considering that these were only from six months prior to admission.

5.2.6 Children

From the results it was identified that the majority of service users had at least one child (56.4%), which is also in line with a study from Gavioli et al. (2020) who identified that the majority (60.7%) also had children. The most common number of children in DD patients was identified as having two children, which is greater than that reported by Mowbray et al. (1997), who reported that having one child was most common.

5.2.7 Education

The most common level of education amongst the individuals admitted was completing up to secondary level education, which corroborates findings from the selected literature (Castaño Pérez et al., 2017; Charzynska et al 2011; Sepehrmanesh et al., 2014). A reason for this is the fact that school is mandatory up to the age of 16 (secondary level) under Maltese Law (European Statistical System, 2018). Nevertheless, Malta also had the highest amount (20%) of early school leavers in 2018 across Europe (European Statistical System, 2018). Coincidentally, this is similar to that reported in this study, as 24.9% of all admitted service users dropped out before completing secondary education. Tertiary education was least common amongst the service users, which is also in line with the selected literature (Castaño Pérez et al., 2017; Charzynska et al 2011; Sepehrmanesh et al., 2014), possibly meaning that higher education levels were a protective factor against admission.

5.2.8 Household, Living Status and Social Support

The majority of service users reported that they had accommodation prior to admission, however 25.4% admissions reported to be homeless. From 143 (25.4%) admissions who reported to be homeless, only 17 were new admissions, meaning that a substantial number of homeless admissions (126) were in fact readmissions. In 2019, a local newspaper 'The Independent' reported that there were an estimated 300 homeless individuals in Malta (Magri, 2019). Consequently, one may argue that homelessness was a predisposing factor to (re)admissions to the DDUs. A local study by Broekroelofs (2019), stated that there is still a lack of recognition regarding homelessness at present, and that public policies are not in line with the needs of the homeless due to the lack of knowledge of the issues which the homeless face.

The majority of service users reported to be living in their parent(s) household (42.6%), while only 15.6% were living in their own house or rented accommodation, and only 2% of service users were provided with social housing. Once again, this outlines the fact that the social safety network in Malta may not be in line with the needs of the local population (Feantsa, 2018).

Most service users lived with their parents (38.7%), while substantially 34.1% reported to be living alone. This finding points towards the fact that even though parents are providing accommodation, this was still not enough to support them in their treatment or recovery plan.

The majority of study participants reported to have a supportive family (67.1%), nevertheless this was not sufficient to prevent admission. It is a known fact that MCH is overcrowded with revolving-door substance abusers, who have nowhere else to go due to the lack and availability of shelters, so much so that the local mental health commissioner contacted the local addiction rehabilitation centres to encourage them to take in more patients (Cachia, 2017; Grech, 2017).

Locally, there are no available walk-in shelters or drug-consumption rooms dedicated for the local substance abusers, of which such services are available across Europe (EMCDDA, 2012; ECMDDA, 2018). Despite most patients stating that they were being supported by their family, the above factors indicate that there are not enough services being provided in order to support patients to an extent which prevents admission.

5.2.9 Employment, Employment Level and Financial Income

The majority of service users in this study were unemployed prior to admission (52%), while another 4.8% reported to have been boarded out. The rates of unemployment are in line with the literature (Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015; Sepehrmanesh et al., 2014) who also reported that over half of DD patient were unemployed. This considerable rate of unemployment could possibly be another contributing factor, as unemployment rate is significantly associated with DD admissions (Azagba et al., 2021; Compton et al., 2014).

Operational or technical jobs (38.2%) were the most common employment level, while only 5.3% of the total population worked at a professional or managerial level. Consequently, this study concluded that from the patients who were employed, 87.8% worked operational or technical occupations, while only 12.2% worked as professional or managerial occupations. When comparing these findings to the local general population, significant differences were noted. The national census by the NSO (2014) reported that 60.7% worked operational or technical occupations, while 39.3% were either professionals or managers, which the latter is three times that of the present study. Consequently, one can hypothesize that higher employment occupations are a protective factor against admission, whereas unemployment is a risk factor.

The majority of patients (62.2%) reported that they had some sort of financial income, however a considerable number (37.8%) reported having no monthly income. Having a poor monthly income of €500- €999 (20%) was most common, which is approximately similar to the average minimum wage of around €777 per month in Malta (Government of Malta, 2019). This finding does not concur with that identified by Gavioli et al. (2020), who reported that the median monthly income of the drug dependence group was double that of the minimum wage. One may argue that that the cohort population of this research study included patients who were financially much poorer due to lower socioeconomic statuses arising from low levels of education and unemployment. 19.4% of the study population reported to be on social benefits (less than €500 monthly), followed closely by the €1000-€1999 (18.4%), whereas a very small proportion of service users (4.4%) reported a monthly income of over €2000. These findings are in line with the employment level of patients in this study since the majority were either unemployed or worked in low-paying sectors (such as

operational or technical jobs). According to The European Union Statistics on Income and Living Conditions (EU-SILC, 2020), 20.1% of the total local population in 2019 were at risk-of-poverty or social exclusion due to being unemployed, on social benefits or minimum wage only. Consequently, this study noted that 77.2% of the service users were at risk-of-poverty or social exclusion, once again highlighting another reason why these individuals may be seeking admission at hospital.

5.2.10 Forensic History, Pending Court Cases and Probation

A considerable number of patients (47.3%) reported to have had a forensic history, were currently on probation (43%) or had a pending court case awaiting sentencing on admission (52.7%). Research has shown that there is a clear association between substance abuse, crime, and forensic history (Hammersley, 2011) and the association between them increases depending on the amount of substance used (Swartz & Lurigio, 1999) and the type of substance used (Uggen & Thompson, 2003). One may argue that the high rates of criminal history were correlated with the fact that most DDU patients had a severe substance dependence (over 3 grams daily) of cocaine or heroin, which are factually correlated with increased rates of crime (Uggen & Thompson, 2003).

5.2.11 Prostitution and Childhood Abuse/Violence

Amongst individuals admitted, the slight majority (51.2%) reported that they were not engaging in prostitution, however this was almost equal to those who were engaging in prostitution (48.8%). Research has shown that prostitution is strongly linked with several psychosocial vulnerabilities such as exposure to sexual, physical, and emotional abuse during childhood (el-Bassel et al., 1997; Gilchrist et al., 2005; Medrano et al., 2003; Widom & Kuhns, 1996), interpersonal violence during adulthood (Farley et al., 2003; Gilchrist et al., 2005; Medrano et al., 2003; Roxburgh et al., 2006) and substance abuse (Craddock et al., 1994; Farley et al., 2003; Medrano et al., 2003; Nuttbrock et al., 2004). This research study also identified that the majority of patients (65.7%) reported to have been victims of sexual, physical, or emotional abuse during their childhood. When comparing the categories prostitution against violence/abuse, a significant finding identified was that 88.2% of patients who were engaging in prostitution had been abused, which is in line with extant literature (el-Bassel et al., 1997; Gilchrist et al., 2005; Medrano et al., 2003; Widom & Kuhns, 1996).

5.2.12 Type and Mode of Admission

From all admissions during the years 2018-2020, 131 were new admissions and 437 were readmissions. The most common mode of admission was being admitted voluntarily (65.7%), whereas involuntary admissions accounted to 32.6% of all admissions, and only 1.8% were court orders. The findings between voluntary and involuntary admissions are in line with present

literature (DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015). During these 3 years, 33.6% of all admissions were accounted for in the year 2018, 42.4% in the year 2019 and 23.9% in the year 2020. A hypothesis is that there were less admissions in 2020 due to the higher rates of homeless admissions, which would result in longer admissions and less turnover of admissions. Across the total number of admissions during these 3 years, the majority of admissions were re-admissions (76.9%), and only 23.1% were new admissions. From the selected literature it was noted that readmissions were sorely under-reported, alas only Castaño Pérez et al. (2017) reported about this finding and stated that 48.4% of the dual diagnosis patients were re-admissions, which is less than that found in this research study. A possible explanation is that this population study had a substantial number of homeless, unemployed, poor and unsupported patients, thus drastically increasing the chances for relapse and admission.

5.2.13 Substance Abuse/Dual Diagnosis and Primary Psychiatric Illness

The majority of service users in the DDUs were diagnosed as dual diagnosis patients (69.9%), however a substantial number (30.1%) of patients were diagnosed to have a substance abuse disorder only. A possible explanation to the number of substance abuse only admissions was due to substance abusers using MCH as respite (Cachia, 2020), to be given methadone or due to the lack of other alternatives (Cachia, 2016).

When examining the psychiatric illnesses amongst the DDUs, it was identified that 30.1% had no psychiatric illness. Nevertheless, the most common psychiatric illnesses across all DDU patients were depression (22.5%), followed by schizophrenia/psychosis (16.7%), ADHD (11.3%) and BPAD (8.3%).

The findings from this study concur with those reported by Sepehrmanesh et al., (2014) who reports mood disorders (i.e., BPAD and depression) (52.9%), followed by schizophrenia (23.8%) and anxiety disorders (14.7%) to be most common. Intriguingly, the present study reported a substantial percentage of patients diagnosed with ADHD. A possible explanation could be correlated to the high prevalence of cocaine as a primary and secondary dependence drug in the population study. Consequently, one may argue that such individuals were using cocaine to self-medicate since cocaine is known to aid attention levels in ADHD (Meade et al., 2011) alleviate low mood and depression (Barrett 2020; Khantzian, 1985; Meade et al., 2011; Morton 1999). Schizophrenia could also be correlated to the high incidence of cocaine, which may have led to drug-induced psychosis such as paranoia, hallucinations, and delusions (Morton, 1999). Moreover, this study also identified that 14.7% of patients who used cocaine as their primary drug suffered from schizophrenia/psychosis. Nevertheless, cocaine was not the biggest contributor for schizophrenia, in fact patients who primarily used marijuana (45.5%) and synthetic cannabinoids

(48.3%) had the highest incidence of having a schizophrenia/psychosis diagnosis. Synthetic cannabinoids are known to cause psychoses such as perceptual alterations, paranoia, catatonia, depersonalization, dissociation, and hallucinations (Yeruva, 2019). Nevertheless, patients who primarily used synthetic cannabinoids had a similar incidence of schizophrenia/psychosis to those who primarily used marijuana. This finding is alarming considering the fact that currently in Malta, the government has published a white paper with the intent to legislate and legalise the consumption of marijuana (Government of Malta, 2021).

5.2.14 Primary and Secondary Dependence Drug

According to the EMCDDA (2018), heroin had been the most common primary drug used in Malta for the past twenty years. Conversely, this research study identified a gap between common drug use and actual admissions to the DDU since cocaine was identified as the most popular primary dependence drug amongst patients (53.9%), followed by heroin (34%), synthetic cannabinoids (10.2%) and marijuana (1.9%). Moreover, the second most common drug of choice was also reported to be cocaine (31%), closely followed by heroin (30.3%), marijuana (13.4%), synthetic cannabinoids (4.2%) and MDMA (1.2%). 19.9% of the service users did not have a secondary drug of choice, meaning that a considerable amount (80.1%) of participants had a poly-drug dependence. The incidence of poly-substance abuse in this study was the highest reported across all the selected literature. Poly-substance abuse in dual diagnosis patients is correlated with both more complex treatment needs and the need for help, as a result leading to higher rates of admission (Andreas et al., 2015).

5.2.15 Primary Drug Route

The most frequent route of abusing from substances was through inhalation (smoking/inhaling) (60.5%), followed by intravenous drug use (IVDU) (29.6%) and insufflation (sniffing/snorting) (9.9%). Conversely, the EMCDDA (2019) has reported that during the past decade, intravenous drug use has been the most common method to consume substances. Nevertheless, they have also reported that the year 2018 was the first year where cocaine had surpassed heroin as the most common drug in Malta which corroborates this finding in this study. Moreover, this would also explain why this study has found inhalation/smoking to be the most common practice as severe cocaine abuse is highly correlated to the smoking of ‘crack cocaine’ (Kiluk et al., 2013).

In addition, cocaine was the most commonly abused drug across both primary and secondary drug dependence. The latest report from the EMCDDA (2019) reported that insufflation was the main method for cocaine use, however conversely this study identified that 63.4% with primary cocaine dependence smoked it, while intravenous cocaine use, and insufflation of cocaine were both equal (18.3% each). A possible explanation being that the majority of DDU patients were heavy drug

users, since crack cocaine allows greater and longer highs compared to snorting cocaine (Kiluk et al., 2013). Heroin which is highly correlated to IVDU (ECMDDA, 2019) was identified in 57.4% of the study population, however a considerable number (42.6%) still opted to inhale heroin instead. A possible explanation to this shift of moving away from IVDU might be that substance abusers are trying to protect themselves against contracting HIV/Hep C through IVDU or needle sharing (Stöppler, 2021). Additionally, the use of non-intravenous practices protects patients from parasuicide, or unintentional and fatal overdoses (Stöppler, 2021).

5.2.16 Daily amount and cost of primary and secondary drug dependence

The most common amount of grams for primary drug dependence was using over 3 grams daily (28.5%), ascertaining that the many DDU patients were heavy drug users, and thus may have been a contributing factor leading to admission. Conversely, this study identified that using 0.5 grams or less (which is a relatively small amount) was the most common amount used in secondary drugs. This phenomenon may possibly be accounted for under the term called ‘snowballing’ or ‘speedballing’ which is when an individual takes a combination of heroin and cocaine. When taking a stimulant, such as cocaine together with a depressant (such as heroin) at the same time, these drugs are known to give substance abusers longer lasting highs and intense euphoria, than that experienced if taking either drug alone (American Addiction Centers, 2021). Moreover, the theory is that the stimulant and depressant cancel each other out, thus neutralising the negative side effects of each drug, which most often is successful (American Addiction Centers, 2021). Nonetheless, this may also be fatal since this combination of substances may give the substance abuser the false sense of belief that they are not that high, consequently believing that they have a higher tolerance which often leads to double-dosing, alas overdosing (American Addiction Centers, 2021). It may be for this reason that DDU service users opted to take higher doses of their primary drug, in addition to smaller doses of their secondary drug, to protect themselves from overdosing. Consequently, the majority of patients (44%) were paying over €100 daily in order to sustain their heavy drug dependence. whilst 80.1% of the population were poly-drug users, thus increasing the daily cost due to also needing money to sustain their second drug dependence.

5.2.17 Age of Drug Onset, Duration of Drug Abuse and Drug Abstinence

The most common age for DDU service users to start drugs was during the age of 16-20 (38.4%), however this was followed closely by the age group 12-15 (33.2%), and 21-29 (15%). Poudel & Gautam (2017) state that there is no clear age that defines the commencement of taking drugs. Present literature does however define ‘late onset’ as individuals who initiate drugs at age 18 or older, while ‘early onset’ to those beginning at age 17 or younger (Clark et al., 1998; Pope et al., 2003).

The majority of patients reported to have been using drugs for over 20 years (34.8%), which is expected since The National Institute on Drug Abuse (NIDA) and DSM-V define addiction as a 'chronic relapsing condition'. Moreover, the majority of both male and female patients had been using drugs for over 20 years, meaning that most of the population consisted of chronic and highly dependent substance abusers.

With regards to abstinence, most DDU patients had been 'clean' from drugs for only 1-3 months (22.3%), however this was closely followed by those who had been abstinent for 1-3 years (16.8%), 7-12 months (15.8%) and 4 years and over (12.3%).

5.2.18 Rehabilitation programmes

Most service users had attended an inpatient rehabilitation programme once in their life time (32.2%), however this was closely followed by those who had never attended one (30.2%). Moreover, the majority of service users (67.8%) attempted at least one rehab programme during their lifetime.

When examining the correlation between abstinence and number of rehab programmes, statistical significance was found, and this study identified that there was a direct correlation between them. A substantial majority (67.2%) of patients who had never attended a rehabilitation programme reported to have never been abstinent, while another 28.1% of patients who never attended rehab reported to have been clean for less than a month. Remarkably, 95.3% of patients who never attended rehab were clean for a total of less than a month, while only 4.7% of service users managed to be abstinent for more than 4 years without attending rehab.

5.2.19 History of Family Addiction

The majority of service users did not have a family member with a history of addiction (68.8%). A study in Brazil by Corradi-Webster & Gherardi-Donato (2016), reported that 54.7% of their patients had a family history of drug use, which is more than that reported in this research study (31.2%). These results must be interpreted with caution as Brazil has one of the highest levels of crime and drug problems worldwide (UNGASS, 2016). When comparing genders, the findings of family addiction were practically identical to each other.

5.2.20 History of Suicide/Parasuicide attempts

56.7% reported to have had an intentional or unintentional suicide attempt (such as unintentionally overdosing) during their lifetime. These findings are similar to those reported by Mowbray et al., (1997) and Youdelis-Flores & Ries, (2015) who report that 44.6% and 40% of their participants had attempted suicide during their lifetime.

5.2.21 Methadone and Buprenorphine/Suboxone Substitute Treatment

The majority of patients at DDU were not on Methadone, however a considerable 44.2% were on Methadone, meaning that almost half the patients were still being treated for heroin on admission. Additionally, 14.3% of the patients were on Buprenorphine or Suboxone, which is another type of heroin substitute treatment. The reason for such a difference is that Methadone is provided for free while Buprenorphine/Suboxone has to be paid for by the patient himself, and it is quite costly. Consequently, one may argue that over half the service users were getting some sort of opioid/heroin substitute treatment on admission. One may argue that patients who were on Buprenorphine/Suboxone managed to maintain abstinence and did not need admission, thus maintenance on Buprenorphine/Suboxone could be considered as a protective factor against admission.

5.2.22 Alcohol Dependence, Tobacco Dependence and Gambling addiction

The majority (54.5%) of service users had an alcohol dependence in addition to their DDD or SAD. Intriguingly, alcohol dependence had a prevalence amongst 79.9% of patients diagnosed with a DDD, thus alcohol dependence was substantially prevalent amongst DD patients. This study identified that alcohol dependence was significantly more common amongst dual diagnosis patients, especially in patients suffering from Depression, BPAD, Anxiety, PTSD and ADHD. Alcohol dependence is correlated to two to three times the risk in individuals suffering from mood disorders, especially in depressive-manic episodes, as alcohol may exacerbate the symptoms of depression and bipolar disorder (Ross et al., 1997). Individuals suffering from ADHD and alcohol dependence are known to exhibit increased impairment of basic inhibitory actions, resulting in high incidences of impulsive behaviour and crime (Fillmore, 2009). Additionally, these individuals may become much more impulsive and chaotic when also having a SAD, and alas may require hospitalisation. Alcohol dependence is also known to have a highly incidence among individuals suffering from anxiety or PTSD and is associated with complex clinical admissions (Smith & Randall, 2012). Alcohol is known to temporarily relieve symptoms of anxiety and give individuals a false sense of relief and euphoria (Smith & Randall, 2012).

The absolute majority of dual diagnosis patients were also smoking tobacco cigarettes (95.8%), while only 4.2% were non-smokers or ex-smokers. From the selected literature only Gavioli et al., (2020) reported similar findings in a male population and identified that 91% of the cohort were smokers. These findings are significantly different to those reported in a study by Carmona-Huerta et al., (2020) who reported that only 46.6% of their participants were tobacco smokers. Moreover, the substantial number of smokers in this population may suggest that there is a correlation

between admissions to the DDUs and smokers, however this is hard to establish since the correlation between them was an under-researched field across the literature.

The absolute majority of DDU service users did not have a gambling addiction (93.3%), meaning that there is no apparent correlation between gambling addiction and the DDU admissions, moreover these findings were in line with Lesieur et al., (1986).

5.3 Trends between Genders of DDU Patients

This section illustrates an overview of the trends related to demographic, socioeconomic and clinical characteristics between genders.

When cross-tabulating all variables with genders, this study identified that there were 33 variables which were statistically and significantly different *(Age, Region, Marital Status, Relationship Breakup, Children, Household, Living Status, Social Support, Education Level, Employment, Employment Level, Financial Income, Pending Court Cases, Probation, Prostitution, History of Abuse, Smoking, Admission Type, Primary Psychiatric Illness, Primary Dependence Drug, Secondary Dependence Drug, Primary Daily Drug use in grams, Secondary daily drug use in grams, Daily Cost of Drugs, Age of Drug Onset, Duration of Drug Abuse, Duration of Abstinence, Rehabilitation Programmes, History of Suicide/Parasuicide, Alcohol Dependence, Gambling Addiction, Methadone Treatment, Buprenorphine/Suboxone Treatment).*

Seven variables were not statistically significant when cross-tabulated by genders (*Nationality, Mode of Admission, Year of Admission, Substance/Dual Diagnosis, Route of Drug, Forensic History, History of Family Addiction).*

This study identified that there were significantly more female admissions across the ages of 18-30, whereas there were significantly more admissions in males who were over 41 years of age. This might be due to the fact that males abuse drugs for a longer period than women (Brunette & Drake, 1997) and females display quicker progression from substance use onset to dependence (Greenfield et al., 2010).

When comparing the number of children, females had two or more, whereas most males had none to one. This is corroborated in research by Mowbray et al., (1997). A possible explanation is that female substance abusers tend to engage in prostitution and extramarital sexual relationships which increases the likelihood of conceiving more children (Khajedaluee et al., 2015).

When analysing employment rates, the number of unemployed females (69.4%) was significantly higher when compared to unemployment in males (43%). Intriguingly 8% of males were boarded out, compared to only 1.4% of females. The NSO (2014) reflects these results, reporting that employment was higher in males. This may be due to the fact that females had significantly more

children than males and would consequently dedicate more of their time to take care for their children (Borg & Vella, 2007). This explanation is corroborated by the NSO (2014), who reported that most females (41.8%) had no occupation due to taking care of their family. Additionally, this study identified that the majority of female service users reside in the Southern Harbour, which is known to have lower levels of education and employment (Debono, 2013; Gatt 2012; NSO, 2014).

When looking into types of employment, more males worked operational or technical jobs (47%) when compared to females (29.2%), which is not in line with findings from the NSO (2014) who reported the opposite. This research study also identified that female patients were not found to occupy any professional/managerial roles, as opposed to males (n=30, 10.5%). This may indicate that females in professional/ managerial occupations are at a lower risk of admission for substance abuse problems.

When examining monthly financial income, there were more than three times the number of males on a stable income (€1000-€1999) when compared to females. Additionally, there were males (n=25) who reported an income of over €2000, as opposed to females (n=0). The fact that there were less female service users being paid on the higher spectrum of income could be due to gender discrimination (European Commission, 2020). In line with this study's findings, the European Commission (2020) explained that this phenomenon happens due to the over representation of females who work in low-paying sectors, while conversely over 80% of males worked in better paid sectors. Intriguingly, there were over double the number of males on social benefits, compared to females. This may be due to the fact that eligibility for social benefits is based on being 'head of the household' (Government of Malta, 2021). In line with this, the present study identified that double the number of males had their own household, compared to females.

When exploring education levels, more males were found to have secondary and tertiary education levels, whereas more females had stopped at a primary education level. Since the NSO (2019) reports that locally females outnumbered males academically at a tertiary education level, one could argue that females having a tertiary education level are less likely to be admitted in view of substance abuse problems, as there were no admissions of tertiary education individuals to the FDDU.

When looking into accommodation, significantly more males had their own household or lived with or in their parental home, whereas more female patients lived with or in their partner's household. This may indicate that females living with their parents were better protected against admission. There were significantly more admissions of homeless female patients than males. Apart from possible contributing factors such as lower education levels, unemployment and prostitution, another possible explanation is that local homeless shelters have a greater male bed

capacity (Vassallo, 2019). Consequently, double the number of females reported that they did not have any social support, which is a significant factor for the recovery process of a substance abuser, as it provides a sense of inclusion, safety, meaning, optimism and counteracts isolation (American Addiction Centers, 2015).

This study reported more single females (84.7%) than single males (74.6%), which is intriguing since in extant literature (Carmona-Huerta et al., 2020; Castaño Pérez et al., 2017; Charzynska et al., 2011; DiNitto et al., 2002; Gavioli et al., 2020; Ponizovsky et al., 2015; Rush & Koegl, 2008; Temmingh et al., 2020) being a single male was found to be a predicative factor for admission. Additionally, this study showed that there were more previously married males (16.4%) than females (10.7%), which indicates that previously married males were more susceptible to admission than females. This present study also identified that there were more married males (9.1%) than females (4.6%), which is dissimilar to that of the general population (NSO, 2014), and contrasts with DiNitto et al.'s findings (2002) which identified more married female patients when compared to males. Recent termination of a relationship was found to be predicative of admission in the majority of females. A possible explanation is that most females find it difficult to cope alone in the community due to the increased unemployment, homelessness and poor income rates found in females.

With regards to prostitution, four times the number of females were engaged in prostitution (80.6%) when compared to males (18.5%). This may be due to the fact that females had lower income, increased homelessness, poor education, and occupation levels (Gilchrist et al., 2005; Medrano et al., 2003). Moreover, when comparing violence/abuse amongst genders, 80.6% of females reported abuse during childhood, which may possibly explain the higher incidence of females engaging in prostitution (Silbert & Pines, 1982).

When looking at forensic history, more females had a pending court case and were on probation when compared to males. This may be due to the fact that female patients had significantly higher amounts of drug use and also a substantially higher rate of prostitution, which are known to be a precipitating factor leading to increased criminal activity (Esbec & Echeburua, 2016; Swartz & Lurigio, 1999; Wallace et al., 2004).

Looking at the clinical aspect, more male patients were diagnosed with depression, schizophrenia and learning disabilities, while female patients were more likely to suffer from ADHD and PTSD. The high incidence of ADHD in females is intriguing, as ADHD is correlated with a higher prevalence in males (Rucklidge, 2010). However, Quinn & Madhoo (2014) state that females with ADHD are harder to diagnose at childhood, due to masking their symptoms and having better

coping strategies than males. It is of note that 85.9% of ADHD admissions were readmissions, which may indicate that ADHD is another contributor to admission.

When analysing the primary drug dependences, approximately half of males and females preferred cocaine. Of the remaining half, double the number of females preferred heroin as opposed to males who made use of heroin, marijuana, and synthetic cannabinoids. This may be due to the fact that heroin is much cheaper than cocaine as reported by the United Nations Office on Drugs and Crime (UNODC, 2018). Additionally, heroin, unlike cocaine, is not generally taken for recreational or social purposes. Rather, it is used as a means of self-medication in coping with pain and trauma (Hartney, 2020). Adding to this, a study by Mills et al., (2018) identified that 66% of patients who were in treatment for heroin dependence were also diagnosed with PTSD.

93.1% of the service users who primarily used synthetic cannabinoids were males, corroborated in findings from the Drug Abuse Warning Network (2012) who reported that 77.5% of patients taken to the emergency department due to synthetic cannabinoid abuse were males. Literature has associated synthetic cannabinoid dependence with severe mental illness such as mood disorders and schizophrenia in males (Cohen et al., 2020), further corroborating the findings of this research study. It is interesting to note that poly-drug abuse was more frequently associated with females, which is in line with research by Mills et al. (2018). The majority (70.8%) of patients in this study who had a secondary drug dependence of synthetic cannabinoids were females.

Looking into the cost of drug use, and amount in grams, it was identified that the significant majority of female patients generally had a more severe drug dependence, as more females were paying over €100 daily to sustain their drug dependence (56.9%) when compared to males (31.4%). Additionally, when looking into the daily amount of drugs in grams, most female patients used 3+ grams daily (37.4%), whereas this was much lower amongst males (19.9%). The hypothesis that female patients had a greater drug dependence than males is further substantiated by the fact that 84.2% of individuals who used 3+ grams of drugs daily were female patients.

When analysing alcohol dependence more female service users had a comorbid alcohol dependence (63.6%), compared to males (45.6%). This may be because alcohol is a cheaper alternative to heroin and may be used to relieve and alleviate symptoms of trauma caused by emotional, physical, and sexual abuse (Lorenz & Ullman, 2016).

The age of drug onset in most males was between the ages 12-15, whereas in females this was usually older (16-20). However, there were significantly more female patients who started using drugs before the age of 12 (8.5%) when compared to males (3.5%). This research study identified more female patients who had suffered from childhood abuse as opposed to males, and extant

research shows that substance abuse is often precipitated by childhood abuse and other psychosocial problems (Poudel & Gautam, 2017). This makes childhood abuse one of the most substantial and significant risk factors which lead to admission. Conversely, the elder age groups of drug onset (21-29, 30-39, 40 and over) were significantly correlated to the male service users, possibly since late onset was correlated to significantly higher socioeconomic problems such as poor employment, marital problems, and financial instability (Poudel & Gautam, 2017).

When analysing the duration of drug dependence, more male patients were found to have a shorter duration of drug abuse when compared to females. This reflected in the findings which show a higher number of new admissions in males as opposed to females. Conversely, one may argue that females with a lower duration of drug abuse were coping better than their male counterparts and did not require admission. Moreover, a larger number of males remained clean for 4+ years, compared to females who were mostly abstinent for less (7-12 months). A contributing factor to the shorter duration of abstinence in females may be that most females attended rehabilitation just once in their lifetime (39.9%), whereas males generally attended rehabilitation a minimum of four times (17.7%).

When looking into gambling, the only significant difference was that there were more male patients (9.8%) who had a gambling addiction, compared to females (3.6%). These findings are corroborated by Lesieur et al., (1986) who similarly reported that 11.5% of males had a gambling addiction, compared to females which was only 2%. This may be explained by the fact that males tend to minimize the perceived risk of gambling while maximizing the perceived benefits of gambling (Wong et al., 2013).

More females had a history of suicide/parasuicide (61.2%) when compared to males (52.3%), which are similar to the findings by DiNitto et al. (2002). This may be related to the fact that the majority of patients in this study were diagnosed with depression, which is known to increase the risk of suicide attempts, especially among substance abusers (Shantna et al., 2012).

When comparing methadone and buprenorphine/suboxone, both male and female patients were mostly not on methadone, however in the case of male patients this was almost equal. Moreover, there were more male patients on methadone (49.1%) than females (39.1%). This finding is intriguing, especially when considering the fact that this study reported more females who had a primary or secondary dependence of heroin. A possible explanation to this trend may be due to the fact that there were three times the number of female individuals who were on Buprenorphine/Suboxone treatment, compared to males, thus compensating for the lack of females on Methadone treatment. Nevertheless, this was still intriguing since more female patients (21.4%) compared to males (7.3%) opted for buprenorphine/suboxone. Conversely, one may

argue that male patients who were on buprenorphine/suboxone managed to maintain abstinence and did not require admission, thus being a predicative factor against admission.

5.4 Trends across the years of admission (2018, 2019 and 2020) of DDU Patients

This section illustrates an overview of the trends related to demographic, socioeconomic and clinical characteristics across the years of admissions.

When cross-tabulating the years of admission across all variables, this study identified that 24 variables were significant *(Age, Nationality, Marital Status, Living Status, Education Level, Employment, Financial Income, Household, Social Support, Admission Type, Mode of Admission, Substance/Dual Diagnosis, Primary Psychiatric Illness, Primary Dependence Drug, Secondary Dependence Drug, Route of Drug, Duration of Drug Abuse, Duration of Abstinence, Rehabilitation Programmes, Pending Court Cases, Age of Drug Onset, Prostitution, History of Abuse, Probation).*

16 variables were not statistically significant when cross-tabulated by years of admission *(Gender, Region, Children, Employment Level, Smoking, Primary Daily Drug use in grams, Secondary daily drug use in grams, Daily Cost of Drugs, History of Suicide/Parasuicide, Alcohol Dependence, Forensic History, Gambling Addiction, History of Family Addiction, Relationship Breakup, Methadone Treatment, Buprenorphine/Suboxone Treatment).*

During the year 2020, this study identified that there were fewer admissions of patients aged 18-30 and an increase of patients aged 36+, whereas in 2018 and 2019 there was no significant difference. Additionally, in 2020 there also was an increase in admissions of patients who started using drugs over the age of 40. An explanation is that due to the psychosocial effects of the COVID-19 pandemic in 2020, middle-aged and elder adults were more affected than the younger adults (Dubey et al., 2020) and sought psychiatric help and respite at MCH.

Furthermore, there was an increase in admissions of foreign patients during the year 2020, compared to 2018 and 2019. A possible explanation was that foreigners were stranded due to suspended commercial flights, lockdown restrictions and forced quarantine in Malta, which are correlated to increased loneliness, psychosocial crisis, and mental health illnesses (Dubey et al., 2020; United Nations High Commissioner for Refugees, 2020), thus requiring hospitalisation.

Another explanation is that many foreigners lost their jobs, as corroborated by the fact that locally unemployment increased by 26% between December 2019 and December 2020 (NSO, 2021). The majority of foreign nationals worked in administration and support activities sector and accommodation/food service sectors (NSO, 2021), and employment rates in this sector were affected drastically during the pandemic (Jobsplus, 2020).

Moreover, this study also identified an increase in admissions of dual diagnosis patients and patients with a history of suicide. Substantiating the above, the UNHCR (2020) reported an alarming rise (50%) in psychiatric consultations and suicide cases in migrants and individuals with a pre-existing mental health illness during the early stages of the pandemic.

After further analysis it was identified that patients diagnosed with bipolar disorder and PTSD increased drastically in 2020. This finding may be explained by the fact that the impact of COVID-19 generated an increase in PTSD, depression, and anxiety disorders (Dubey et al., 2020) due to mass hysteria, economic burdens, and financial losses.

Moreover in 2020, this study identified an increase in admissions of patients who had been using drugs for over 20 years, had been abstinent for over 4 years and had attempted rehabilitation over 4 times. One may hypothesize that due to the long duration of drug abuse and several rehabilitation attempts, these individuals were chronic substance abusers who had exhausted all possible services to no avail, and during the pandemic required sought shelter through hospitalisation.

In the case of the increase in admissions of patients who had been abstinent for 4+ years, one may hypothesize that these individuals lost their jobs during the pandemic. In line with this hypothesis, Henkel (2011) states that unemployment is a major predictor for relapsing into substance abuse, and unemployed individuals were 2-3 times more likely to relapse than patients who were employed.

Additionally, the increase in admissions of patients who used copious amounts of drugs (3+ grams) and €100+ daily, could also be reflective of the psychosocial impact of COVID-19 and increase in unemployment in 2020. Dubey et al., (2020) states that mental distress from the impact of COVID-19 may increase substance-abuse dependence, whereas Henkel (2011) stated that unemployed individuals are known to relapse more severely and significantly earlier than individuals who have paid employment

Across 2018 and 2019, there was a small but gradual increase in admissions of homeless individuals, however in 2020 this rose drastically. An explanation as identified by Broekroelofs (2019) was that the local economic growth between 2018 and 2019 led to an increase in general prices and housing costs, leading to a phenomenon known as ‘the working homelessness’. This phenomenon meant that homeless individuals who were employed still found it unaffordable to keep up financially and could not afford basic needs or housing (Broekroelofs, 2019).

In 2020 there was also a significant increase in admissions of patients who had their own house or lived in their partner’s house, whereas conversely there was a decrease of admissions of patients living with their parents. A possible explanation could be that due to the pandemic, patients could

not afford the cost of living in their own or partner's household, whereas those living with their parents had better social and financial support, due to not having the burden of accommodation costs. Consequently, patients who lost their job, were not coping financially or were homeless, may have relapsed and required hospitalisation. Moreover, there was a significant increase in admissions of patients who did not have social or family support during the 2020, which is reflective of the findings from this research study due to the pandemic.

5.5 Strengths of the Study

The researcher targeted all attainable admissions to both DDUs over a span of three years (2018 and 2020) allowing for the inclusion of all complete data along with having the largest cohort possible. Furthermore, this allowed the researcher to possibly identify the majority of the promoters leading up to admission, in addition to comparing the differences in trends between males and females. Additionally, this study consisted of a vast sample size, together with a population size consisting of a homogenous sample of males and females. This research study also collected and examined an extensive number of variables, resulting in copious amounts of data relating to dual diagnosis. Furthermore, this study is the first to extensively investigate these numerous variables which might possibly lead to admission and have not been reported extensively in present literature, such as recent relationship breakup, social support, average income per month, amount (grams) of primary and secondary drug usage, daily cost (euros) of drug usage, age of drug onset, duration of drug dependence, duration abstinent from drugs, rehabilitation programmes, pending court cases, probation status, parasuicide/suicide attempts, gambling, tobacco smoking, family addiction history, prostitution, childhood abuse/victimisation, methadone and buprenorphine/suboxone substitute treatment. Moreover, the researcher also examined whether there were any shifts in trends during the three years of admission. Incidentally, the timing of the study was also a strength, as any potential differences and effects of the pre-COVID years (2018, 2019) could be analysed versus the COVID year (2020). Additionally, since in Malta there are no other designated Dual Diagnosis Units, this study provides a nation view of the demographic, socioeconomic and clinical correlates of the dual diagnosis population.

5.5.1 Limitations of the Study

Even though this study has several strengths, its limitation should also be acknowledged:

A shortcoming of the study is that quantitative data is dependent on retrospective data, alas it was not possible for the researcher to go back and clarify certain missing data or misconceptions. Despite that the sample size of the study population is extensive, it is important to note that the population included in this study only represented those admitted to the designated dual diagnosis

wards in Malta. Alas, other substance abusers and dual diagnosis patients who were admitted to other wards in MCH were not included in this study.

Moreover, the quality and consistency of data reported in the admission record sheet was dependant on the proficiency of the medical practitioner completing the admission sheet, and the compliancy of the individual on admission. This was not always possible due to some patients being overtly psychotic, aggressive, agitated, uncooperative, dishonest, evasive, or reticent. It was not possible for specialists to give a clear psychiatric diagnosis to patients who discharged against medical advice after a few hours after admission. Moreover, it was identified that patients were not generally diagnosed with personality disorders by their respective clinicians.

5.6 Conclusion

This chapter provides an elaborate discussion and potential explanations to the findings in relation to the many extensive themes of the literature review. Most of the results are comparable to international studies. These include the demographic, socioeconomic and clinical characteristics that are associated with dual-diagnosis mainly unemployment, homelessness, poor education levels, being unmarried, having a severe psychiatric illness, living alone, and living in disadvantaged neighbourhoods (Mueser et al., 2003). In line with Greenfield et al., (2010) this study identified that female DD patients generally had a more severe drug dependence, psychological, social, clinical, and socioeconomic problems, compared to males. Across the years of admission, this study identified that in 2020 there was an increase in admissions of patients with very poor socioeconomic backgrounds, no social support, patients with mood disorders, chronic substance abusers and patients who had a severe drug dependence.

Following the above analysis, the next chapter will bring together the primary findings of the study which represents the main explanations to the research questions. It also provides recommendations for service improvements and ideas for further research. It concludes with a brief analysis of the study's strengths and limitations.

Chapter 6

Conclusion &

Recommendations

6 Conclusion

6.1 Introduction

This chapter provides a summary of the findings that have been explored through demographic, socioeconomic and clinical variables of individuals admitted to the Dual Diagnosis Units (DDUs) over a three-year period. This section also provides a summary of differences in trends found between male and female patients, and trends found across the years of admission (2018-2020) at the DDUs,

Following these summaries, the strengths and limitations of the study are presented in addition to a list of recommendations and interventions for future research, education, and practice.

6.2 Research Summary

The primary literature search generated a restricted number of studies which examined the potential promoters and risk factors leading to the admission of dual diagnosis patients in DDUs. Moreover, even fewer studies focused on the demographic, socioeconomic and clinical differences between male and female patients, while studies focusing on trends over the years were under-researched and reported. A retrospective document analysis of patients admitted to the DDUs between 2018 and 2020 was used for this research study. Data collection initiated on 1st July 2020 and ended on 7th January 2021 after performing an archival research and document analysis of all available admission record sheets of patients' files at the medical records of the state psychiatric hospital.

The following sections provide a summary of the demographic, socioeconomic and clinical differences amongst individuals admitted to the DDUs, by genders and across the years of admission.

6.2.1 Demographic differences in individuals admitted to the DDUs

No significant difference was found between the number of male and female admissions during 2018-2020. Between 2018-2020, the modal age of admission was reported to be between 25 to 40. Younger age was associated with male patients, whereas older age was associated with females. Further analysis indicated that there was a decrease in admissions of young adults aged 18-35, and an increase in individuals aged 36+ in 2020. 9.5% of DDU patients were foreign and in 2020 there were double the percentage of foreigners compared to previous years. Most individuals admitted to the DDUs resided in the Southern Harbour District. Additionally, the most popular district for female patients admitted to the DDU was distinctively the Southern Harbour District, whereas the majority of male patients were equally divided between the Southern and Northern Harbour Districts. The most popular marital status for admitted patients was being single

(79.6%). There was a significant increase in divorced/separated patients being admitted during 2020. Secondary education was the most common education, however lower education levels were much more prevalent amongst females.

6.2.2 Social Status differences in individuals admitted to the DDUs

25.4% of service users were homeless, whereas the majority (42.6%) lived in their parental home. The majority of female patients were homeless and lived alone, whereas male patients lived in their parental house with their parents. Intriguingly during the year 2020, there was an increase in admissions of patients living with their partner or who were homeless. The majority of patients were supported by their family; however, females had less support than males. Consequently, in 2020 an increase in admissions of patients without social support was identified. The majority of service users broke up with their partner prior to admission and was most frequent amongst females (63%) compared to males (44.4%).

6.2.3 Employment and Financial differences in individuals admitted to the DDUs

The majority of male admissions were employed (57%), while conversely the majority of females were unemployed (70.8%). In 2020 there was an increase in admissions of individuals who worked in operational or technical occupations.

37.8% of the study population had no financial income, however the majority (60.1%) of female service users had no financial income, compared to males (15.8%). Only male patients had an income of over €2000 or worked as managers or professionals. In the year 2020 there was an increase in admissions of patients who were on social benefits or had a monthly income of €500-€999.

6.2.4 Forensics and Abuse differences in individuals admitted to the DDUs

The majority of females were on probation or had a pending court case, whereas this was not the case amongst males. 65.7% of reported to have been victims of abuse and this increased consistently across the years of admission. 80.6% of female suffered from abuse or victimisation, compared to males (51.5%), while another 80.6% of female patients were engaging in prostitution, compared to males (18.5%).

6.2.5 Admission trends in individuals admitted to the DDUs

76.9% of all admissions were re-admissions, while 87.2% of all female admissions were readmissions, compared to males (66.9%). Re-admissions increased drastically in 2020 compared to both 2018 and 2019. The majority of admissions were voluntary, while 32.6% were involuntary. There were more female service users admitted on an involuntary basis (37.0%), compared to males (28.2%). 69.9% of DDU patients had a dual diagnosis disorder, whereas 30.1% had a

substance abuse disorder only and did not have a psychiatric illness. The most common psychiatric illnesses were Depression (22.5%), Schizophrenia (16.7%), ADHD (11.3%) and BPAD (8.3%). Depression, Schizophrenia and LD admissions were more prevalent across males, whereas PTSD and ADHD were more prevalent across females. In 2020 there was a drastic increase in patients suffering from dual diagnosis, specifically PTSD and Bipolar disorder.

6.2.6 Extent of substance abuse differences in individuals admitted to the DDUs

Cocaine was the most popular drug used as both a primary and secondary dependence drug, followed by heroin. Intriguingly, there were more patients who used synthetic cannabinoids as their primary drug. 80.1% of the study population had a poly-drug dependence. A significant number of males and females used cocaine as their primary drug, however double the number of females used heroin. 93.1% of primary synthetic cannabinoid users and all primary marijuana users were males. In 2020, admissions of patients who primarily used cocaine increased. Across 2018 to 2020 it was identified that smoking/inhalation of drugs increased each year, while conversely IVDU decreased each year. The majority of individuals admitted to the DDU used copious amounts of drugs (3+ grams daily). Patients who had a secondary drug dependence most commonly only used 0.5 grams or less. The majority of female patients used 3+ grams on their primary drug, whereas males most commonly used 0.1-0.5 grams or 3+ grams. 84.2% of service users who also used 3+ grams on their secondary dependence drug were females. The majority of DDU patients paid over €100 daily for their drug dependence and was more common amongst females (56.9%) than in males (31.4%).

6.2.7 Substitute treatment differences in individuals admitted to the DDUs

The most prevalent substitute treatment amongst the DDUs was Methadone (44.2%). Additionally, Buprenorphine/Suboxone treatment was used by 14.3% of patients. More male patients were on Methadone compared to females, however inversely there were three times more female patients on Buprenorphine/Suboxone than males. The majority (54.5%) of the population also had an alcohol dependence and this was significantly more common amongst females (63.6%) compared to males (45.6%).

6.2.8 Extent of substance dependence differences in individuals admitted to the DDUs

The common age to start drugs across DDU patients was age 16-20 (38.4%). Males started using drugs at earlier ages (12-15, 36%), whereas females started slightly later (age 16-20, 46.3%). In 2020, a drastic increase in admissions of patients who started abusing drugs aged 40+ was noted. Using drugs for over 20 years and being abstinent for only 1-3 months was most common amongst the majority of patients. A higher duration of abstinence (4+ years) was two times more common

amongst males than female patients. 32.2% of DDU patients never attended a rehabilitation programme. 68.8% of the study population lived with a family member with an addiction disorder during their lifetime. 56.7% of all patients reported to a suicide/parasuicide attempt, however this was significantly more prevalent amongst females (55.1%) than males (33.3%).

6.3 Recommendations and Interventions

Based on the findings of this research study, the following policy recommendations and practices are suggested.

6.3.1 Recommendations for Educational Policy

- Due to the fact that the majority of substance abusers started at a young age it is being suggested that earlier educational campaigns, awareness and promotion regarding mental health, substance abuse and services available are to be promoted from earlier ages of childhood, especially at the beginning of secondary schooling. There were still a considerable number of patients who started using drugs before age 12, and therefore more awareness about mental health and substance abuse should also be given during primary level education, in order to pre-empt and prevent future deterioration and earlier onset of substance abuse.
- Due to the fact that almost half of patients admitted who primarily smoked Marijuana and Synthetic Cannabinoids had comorbid schizophrenia, better awareness and education on the harmful and possible psychotic effects of both marijuana and synthetic cannabinoids are needed.
- In view of the substantial number of individuals who had only completed up to the primary level of education, better guidance and support is required for students starting from the latter stages of primary school till the end of secondary schooling, with the aim of preventing early school dropouts, since lower education levels were a risk factor for admission. Additionally, children attending school may be followed up by the same designated guidance teachers throughout primary and secondary school, in order to identify any early abuse, trauma and mental health issues. Moreover, this will act as a protective factor to prevent low levels of education and early school leaving, especially as seen amongst female patients.
- More awareness and education regarding the services which are available for family members of substance abusers, based on the fact that a third of patients did not have their family's support, while another third of the population had lived with a family member who also had an addiction disorder, thus increasing the probability of continuing the addiction cycle.

- In view of the high number of females suffering from PTSD and who were also victims of abuse, an increase in online and media awareness campaigns about domestic violence, trauma, and therapy services available are being recommended.

6.3.2 Recommendations for further research

- Further quantitative analysis and cross-tabulations of other variables, since due to time constraints and word limitations, a number of possible phenomena could not be examined. Future research could cross-tabulate all variables across 1) Regions, 2) Psychiatric illness, 3) Primary drug, 4) Age, etc.
- In view of the increase of trends and variables such as elder age, foreigners, homelessness, unemployment, no support, readmissions, drug dependence, dual diagnosis, and PTSD during 2020, further qualitative research such as conducting a phenomenological study on the lived experiences of patients admitted to the DDUs during the COVID-19 pandemic is being recommended.
- More qualitative research exploring the correlation between tobacco smoking, its underlying factors, and substance abuse is recommended in light of the fact that over 95% of substance abusers were also found to have a smoking habit.

6.3.3 Recommendations for clinical practice

- In view of the high number of re-admissions and admissions of patients without a psychiatric illness, admissions to DDU should only be referred by substance abuse specialists and the Detox Centre, to maintain better gatekeeping. Consequently, this would require the Detox Centre service to become a 24-hour service, while in addition also offers Methadone around the clock in order to prevent unnecessary admissions.
- In view of the significant number of patients who were homeless, unemployed, had a poor financial status and support, the need for more homeless shelters and harm reduction shelters, together with more rehabilitation programmes which offer different therapeutic recovery models are recommended. Furthermore, specialised emergency shelters which cater for active substance abusers who currently do not pose a risk to self or others may be proposed.
- In order to drastically reduce the admission of patients who relapse due to not finding employment or housing after completing rehab or being discharge, the setting up of more half-way-houses (such as ‘Dar Charles Miceli’) are recommended, as this would offer service users with temporary housing until securing employment and housing. Moreover, long term subsidised housing or transitory residences for dual diagnosis individuals who

complete rehab or have been discharged from hospital may be another alternative, as this may help reduce the high number of readmissions.

- Setting up of drug assisted clinics, which provide long-term shelter and treatment (with the aim of tailing down drug use over a period of 6-12 months) for patients who are chronic substance abusers (over 20 years) and have exhausted all possible services (completed rehab several times) to no avail (EMCDDA, 2012).
- In view of the high number of patients with a forensic history and unemployment, more facilitated and dedicated job opportunities/schemes are needed for substance abusers. Moreover, in view of the high levels of unemployment and poor occupation levels, especially in females, more job opportunities, skill training, apprenticeships, and dedicated schemes which tackle female unemployment are needed.
- In view of the high prevalence and incidence of patients in the Southern Harbour, the opening of more mental health clinics and dedicated substance abuse treatment centres in the area would aid individuals with mental health problems and prevent patients being left to wait for several months to be followed-up.
- Possibility for dual diagnosis patients to be followed up by specialised psychiatric keyworker nurses in the community, by opening a dedicated and specialised Substance Abuse service which provides both a Crisis Intervention service and home treatment service, similarly to the service provided by the Child & Adolescent Psychiatric Emergency Services (CAPES) team, which caters for children. Additionally, this will also offer better support, thus maintaining better abstinence through more regular visits, therapeutic interventions, and urine tests. Consequently, this may possibly reduce relapses and prevent readmissions.
- In view of the substantial number of patients who are still using illicit substances while on Methadone treatment, while conversely there are a low number of patients on Buprenorphine/Suboxone, the following is being recommended: Buprenorphine/Suboxone maintenance treatment to be included in the national formulary so as to be given for free as an alternative to Methadone, for patients who have been unsuccessful in maintaining abstinence.

6.4 Conclusion

This study provides a snapshot of possible extensive demographic, socioeconomic and clinical factors which may lead to the hospitalisation of DDU individuals. Several variables (single, unemployment, homelessness, poor income, living with parents, childhood abuse, relationship breakup, prostitution, tobacco smoking, early onset of drug abuse and living in the southern harbour) were identified as prevalent factors of DDU admissions.

Moreover, this study conceptualises that even though both genders have the same similar drug dependency, the demographic, socioeconomic, and clinical variables of females are completely distinct to those of males and therefore both genders are different and should be provided specialised care depending on their individual needs. Additionally, this study also uncovered that female patients had more severe drug dependence, psychosocial problems, and came from lower socioeconomic and demographic backgrounds, compared to male patients.

Furthermore, this study also provided the researcher with valuable insight that variables and trends change over years, alas this was majorly affected by the effects of the pandemic in 2020. The year 2020 had an increase in admissions of individuals who were of elder age, foreign, homeless, unemployed, diagnosed with BPAD and PTSD, had a drug dependence of over 20 years, used 3+ grams and over €100 daily, and had a history of suicide/parasuicide was identified, possibly due to the economic and psychosocial effects of the COVID-19 pandemic. It is evident that dual diagnosis patients and substance abusers are susceptible to suffer from indigence, homelessness, exploitation, and prejudice. Moreover, this study also uncovered that cocaine dependence has become the most commonly used drug amongst DDU patients. Additionally, synthetic cannabinoid dependence, while still relatively low, is currently on the rise. Furthermore, almost half of patients who had a primary dependence of marijuana and synthetic cannabinoids were diagnosed with comorbid schizophrenia. This study signifies the importance and need to provide these patients with better support especially in the community, together with laying out the plans for the future to prevent and tackle possible contributing factors from early childhood.

References

References

American Addiction Center. (2021). *What is a speedball?* https://doi.org/https://www.addictioncenter.com/drugs/heroin/speedball/

American Addiction Centers. (2015). *Recovery from Addiction: Social Support.* Retrieved from https://www.mentalhelp.net/addiction/recovery/social-support/

Anastasi, A., & Urbina, S. (1997). *Psychological testing (7th ed.).* Retrieved from https://psycnet.apa.org/record/1998-07223-000

Andreas, J. B., Lauritzen, G., & Nordfjaern, T. (2015). Co-occurrence between mental distress and poly-drug use: A ten year prospective study of patients from substance abuse treatment. *Addictive Behavior, 48*, 71-78. https://doi.org/doi: 10.1016/j.addbeh.2015.05.001

Azagba, S., Shan, L., Qaedan, F., & Wolfson, M. (2021). Unemployment rate, opioids misuse and other substance abuse: quasi-experimental evidence from treatment admissions data. *BMC Psychiatry, 21*(22). https://doi.org/10.1186/s12888-020-02981-7

Barrett, S. (2020). *How Drug Use Affects Symptoms of Bipolar Disorder*. Retrieved from https://delamohospital.com/how-drug-use-affects-symptoms-of-bipolar-disorder

Boardman, J. D., Finch, B. K., Ellison, C. G., Williams, D. R., & Jackson, J. S. (2001). Neighborhood disadvantage, stress, and drug use among adults. *42*(2), 151-65. https://doi.org/10.2307/3090175

Borg, A., & Vella, M. (2007). *Women and Work: Findings from a study on the work aspirations of Maltese women.* Retrieved from Jobs Plus: https://jobsplus.gov.mt/resources/publication-statistics-mt-mt-en-gb/publications/fileprovider.aspx?fileId=1240

Broekroelofs, M. E. (2019). *The vicious cycle of homelessness.* Retrieved from http://www.ymcamalta.org/audit/196ecd0787.pdf

Brunette, & Drake. (1997). Gender differences in patients with schizophrenia and substance abuse. *Comprehensive Psychiatry, 38*(2), 109-116. https://doi.org/10.1016/S0010-440X(97)90090-0

Cachia, J. (2017). *Annual Report 2016.* Retrieved from Office of the Commissioner for Mental Health: https://deputyprimeminister.gov.mt/en/CommMentalHealth/Documents/2018/AR%202016%20Full%20Report.pdf

Cachia, J. (2019). *Annual Report 2018 - "Empowering Stakeholders: Building Bridges and Crossing them together".* Retrieved from Office of the Commissioner for Mental Health: https://deputyprimeminister.gov.mt/en/CommMentalHealth/Documents/Annual%20Report%202018.pdf

Cachia, J. (2020). *Combatting Stigma and Discrimination: Empowering stakeholders and tackling challenges together - Annual Report 2019*. Retrieved from Office of the Commissioner for Mental Health: https://deputyprimeminister.gov.mt/en/CommMentalHealth/Documents/2020/OCMH%20AR%202019%20FINAL.pdf

Cantor-Graae, E., Nordstrom, L. G., & McNeil, T. F. (2001). Substance abuse in schizophrenia: a review of the literature and a study of correlates in Sweden. *Schizophr Res, 48*(1), 69-82. https://doi.org/10.1016/s0920-9964(00)00114-6

Carmona-Huerta, J., Castiello-de Obeso, S., Aguirre-Ramírez, A., Pérez-Muñoz, S., Cardona-Müller, D., Grover-Páez, F., Iñiguez-Carvajal, B., Aldana-López, J. A., Itzaman-Jiménez, I., & Medina-Dávalos, R. (2020). Use Of Psychoactive Substances And Sociodemographics Characteristics In A Hospitalized Population With Mental Disorders In A Mid-Income Country. *Research Square*. https://doi.org/10.21203/rs.3.rs-34957/v1

Castaño Pérez, G. A., Rojas Bernal, L. A., Silva, J. B., & Sierra Hincapie, G. M. (2017). Sociodemographic and clinical factors associated with dual disorders in a psychiatric hospital. *Salud Mental, 40*(6), 279-290. https://doi.org/10.17711/SM.0185-3325.2017.036

Charzynska, K., Hyldager, E., Baldacchino, A., Greacen, T., Henderson, Z., Laijarvi, H., Hodges, C. L., Lack, C., Sieroslawski, J., & Baeck-Moller, K. (2011). Comorbidity patterns in dual diagnosis across seven European sites. *Eur. J. Psychiatry, 25*(4), 179-191. https://doi.org/10.4321/S0213-61632011000400001

Clark, D. B., Kirisci, L., & Tarter, R. E. (1998). Adolescent versus adults onset and the development of substance use disorders in males. *Drug Alcohol Depend, 49*(2), 115-121. https://doi.org/10.1016/S0376-8716(97)00154-3

Cohen, K., Mama, Y., Rosca, P., Pinhasov, A., & Weinstein, A. (2020). Chronic Use of Synthetic Cannabinoids Is Associated With Impairment in Working Memory and Mental Flexibility. *Front Psychiatry*. https://doi.org/https://doi.org/10.3389/fpsyt.2020.00602

Compton, W. M., Gfroerer, J., Conway, K. P., & Finger , M. S. (2014). Unemployment and substance outcomes in the United States 2002-2010. *Drug Alcohol Depend, 1*(143), 350-353. https://doi.org/10.1016/j.drugalcdep.2014.06.012

Comtois, K. A., & Ries, R. K. (1995). Sex differences in dually diagnosed severely mentally ill clients in dual diagnosis outpatient treatment. *The American Journal on Addictions, 4*(3), 245-253. https://doi.org/10.3109/10550499509038109

Corradi-Webster, C. M., & Gherardi-Donato, E. C. (2016). Factors associated with problematic drug use among psychiatric outpatients. *Rev Lat Am Enfermagem, 24*. https://doi.org/10.1590/1518-8345.1444.2815

Craddock, A. (1994). *Fact Sheet: Drug-Related Crime*. Retrieved from Rockville Md: https://bjs.ojp.gov/content/pub/pdf/DRRC.PDF

Debono, J. (2013). *Unemployment highest in harbour area.* Retrieved from Malta Today: http://www.maltatoday.com.mt/news/national/26776/unemployment-highest-inharbour-

DiNitto, D. M., Webb, D. K., & Rubin, A. (2002). Gender differences in Dually-Diagnosed clients receiving chemical dependency treatment. *J Psychoactive Drugs, 34*(1), 105-117. https://doi.org/10.1080/02791072.2002.10399942

Drake, R. E., & Brunette, M. F. (1998). Complications of severe mental illness related to alcohol and drug use disorders. *Recent Dev Alcohol, 14*, 285-299. https://doi.org/10.1007/0-306-47148-5_12

Drug Abuse Warning Network. (2012). *Drug-Related Emergency Department Visits Involving Synthetic Cannabinoids*. Retrieved from SAMSHA: https://www.samhsa.gov/data/sites/default/files/DAWN105/DAWN105/SR105-synthetic-marijuana.htm

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, S., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. *Diabetes Metab Syndr, 14*(5), 779-788. https://doi.org/10.1016/j.dsx.2020.05.035

el-Bassel, N., Schilling, R. F., Irwin, K. L., Faruque, S., Gilbert, L., Von Bargen, J., Serrano, Y., & Edin, B. R. (1997). Sex trading and psychological distress among women recruited from the streets of Harlem. *Am J Public Health, 87*(1), 66-70. https://doi.org/10.2105/ajph.87.1.66

Esbec, E., & Echeburua, E. (2016). Substance abuse and crime: Considerations for a comprehensive forensic assessment. *Adicciones, 28*(1), 48. https://doi.org/10.20882/adicciones.790

European Commission. (2020). *Gender pay gap situation.* Retrieved from https://ec.europa.eu/info/policies/justice-and-fundamental-rights/gender-equality/equal-pay/gender-pay-gap-situation-eu_en

European Monitoring Centre for Drugs and Drug Addiction. (2015). *European Drug Report 2015: Trends and Developments*. Retrieved from https://www.emcdda.europa.eu/publications/edr/trends-developments/2015_en

European Monitoring Centre for Drugs and Drug Addiction. (2016). *European Drug Report 2016: Trends and Developments*. Retrieved from https://www.emcdda.europa.eu/publications/edr/trends-developments/2016_en

European Monitoring Centre for Drugs and Drug Addiction. (2019). *Drug consumption rooms: an overview of provision and evidence.* Retrieved from

https://www.emcdda.europa.eu/system/files/publications/2734/POD_Drug%20consumption%20rooms.pdf

European Monitoring Centre for Drugs and Drug Addiction. (2020). *Malta Country Drug Report 2019*. Retrieved from https://www.emcdda.europa.eu/system/files/publications/11328/malta-cdr-2019.pdf

European Statistical System. (2018). *European Statistic Day 2018*. Retrieved from https://ec.europa.eu/eurostat/news/themes-in-the-spotlight/european-statistics-day-2018

European Union Statistics on Income and Living Conditions. (2019). *Material Deprivation and Monetary Poverty.* Retrieved from National Statistics OFfice: https://nso.gov.mt/en/News_Releases/Documents/2020/12/News2020_202.pdf

Farley, M., Cotton, A., Lynne, J., Zumbeck, S., Spiwak, F., Reyes, M. E., Albarez, D., & Sezgin, U. (2008). Prostitution and Trafficking in Nine Countries. *Journal of Trauma Practice, 2*(3-4), 33-74. https://doi.org/10.1300/J189v02n03_03

Feantsa. (2018). *Future Challenges for the Homeless Sector in Europe.* Retrieved from https://www.feantsa.org/en/event/2018/06/14/2017-feantsa-policy-conference-future-challenges-for-the-homeless-sector-in-europe

Fillmore, M. T. (2009). Increased Sensitivity to the Disinhibiting Effects of Alcohol in Adults with ADHD. *Exp Clin Psychopharmacol, 17*(2), 113-121. https://doi.org/10.1037/a0015418

Franken, H., Parker, J., Allen, R., & Wicomb, R. A. (2019). A profile of adult acute admissions to Lentegeur Psychiatric Hospital, South Africa. *South African Journal of Psychiatry, 25*. https://doi.org/10.4102/sajpsychiatry.v25i0.1244

Gatt, J. (2012). *Mapping social inequality: The spatial distribution of early school leavers in Malta.* Retrieved from https://www.um.edu.mt/library/oar/handle/123456789/5388

Gavioli, A., Pazin, P. T., Marangoni, S. R., Hungaro, A. A., Santana, C. J., & Felix de Oliveria, M. L. (2020). Drug use by men admitted to a psychiatric hospital. *Rev. Latino-Am Enfermagem, 28*. https://doi.org/10.1590/1518-8345.3370.3296

Gilchrist, G., Gruer, L., & Atkinson, J. (2005). Comparison of drug use and psychiatric morbidity between prostitute and non-prostitute female drug users in Glasgow, Scotland. *Addict Behav, 30*(5), 1019-1023. https://doi.org/10.1016/j.addbeh.2004.09.003

Government of Malta. (2021). *Benefits and Services: Inclusion Equality and Social Welfare.* Retrieved from https://www.servizz.gov.mt/en/Pages/Inclusion_-Equality-and-Social-Welfare/Social-Solidarity/Benefits-and-Services/WEB649/default.aspx

Government of Malta. (2021). *Towards the strenghtening of the legal framework on the responsible use of Cannabis*. Retrieved from https://meae.gov.mt/en/Public_Consultations/MJEG/PublishingImages/Pages/Consultatio

ns/TowardstheStrengtheningoftheLegalFrameworkontheResponsibleUseofCannabis/CANNABIS%20ENG.pdf

Grech, B., & Micallef Trigona, B. (2020). *Psychiatric admissions in Malta: demographics and diagnoses.* Retrieved from Malta Medical Journal: https://www.um.edu.mt/library/oar/handle/123456789/65065

Grech, D. (2017). *Mount Carmel is 'revolving door' for former patients with nowhere to go.* Retrieved from Malta Today: https://www.maltatoday.com.mt/news/national/80842/mount_carmel_is_revolving_door_for_former_patients_with_nowhere_to_go#.YIu9TrUzbZk

Gregory, K. E., & Radovinsky, L. (2012). Research strategies that result in optimal data collection from the patient medical record. *Appl Nurs Res, 25*(2), 108-116. https://doi.org/10.1016/j.apnr.2010.02.004

Hartney, E. (2020). *The feelign of getting high on heroin.* Retrieved from https://www.verywellmind.com/what-heroin-effects-feel-like-22047

Insch, G. S., Moore, J. E., & Murphy, L. D. (1997). *Quantitative content analysis*. Retrieved from https://www.researchgate.net/profile/David-Morgan-43/post/How-can-I-measure-learners-collaboration-skills-quantitatively-or-qualitatively/attachment/59d64cfe79197b80779a6a72/AS%3A486422697254912%401492983616025/download/Quantitative+content+analysis.pdf

Jerrell, J. M., & Ridgely, S. M. (1995). Comparative effectiveness of three approaches to serving people with severe mental illness and substance abuse disorders. *Journal of Nervous and Mental Disease, 183*(9), 566-576. https://doi.org/10.1097/00005053-199509000-00002

Jobsplus. (2020). *Foreign Nationals Employment Trends*. Retrieved from https://jobsplus.gov.mt/resources/publication-statistics-mt-mt-en-gb/labour-market-information/foreigners-data#title2.1

Kavanagh, D. J., Waghorn, G., Jenner, L., Chant, D. C., Carr, V., Evans, M., Herrman, H., Jablensky, A., & McGrath, J. J. (2003). Demographic and clinical correlates of comorbid substance use disorders in psychosis: multivariate analyses from an epidemiological sample. *Schizophrenia Research, 66*, 115-124. https://doi.org/10.1016/S0920-9964(03)00130-0

Kessler, R. C., Crum, R. M., Warner, L. A., Nelson, C. B., Schulenberg, C. B., & Anthony, J. C. (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Arch Gen Psychiatry, 54*(4), 313-320. https://doi.org/10.1001/archpsyc.1997.01830160031005

Khajedaluee, M., Dadgarmoghaddam, M., Erfanian, M., Alipourtabrizi, A., & Khadem-Rezaiyan, M. (2015). Women, Drug Dependency and Consequences: A Study from a Developing Country. *J Addict*. https://doi.org/10.1155/2015/831954

Kiluk, B. D., Babuscio, T. A., Nich, C., & Carroll, K. M. (2013). Smokers versus snorters: Do treatment outcomes differ according to route of cocaine administration? *Exp Clin Psychopharmacol, 12*(6), 490-498. https://doi.org/10.1037/a0034173

Kirmayer, L. J., Narasiah, L., Munoz, M., Rashid, M., Ryder, A. G., Guzder, J., Hassan, G., Rousseau, C., & Pottie, K. (2011). Common mental health problems in immigrants and refugees: general approach in primary care. *CMAJ, 183*(12), 959-967. https://doi.org/10.1503/cmaj.090292

Lesieur, H. R., Blume, S. B., & Zoppa, R. M. (1996). Alcoholism, drug abuse, and gambling. *Alcohol Clin Exp Res, 10*(1), 33-38. https://doi.org/10.1111/j.1530-0277.1986.tb05610.x

Lorenz, K., & Ullman, S. E. (2016). Alcohol and sexual assault victimization: Research findings and future directions. *Aggression and Violent Behavior, 31*, 82-94. https://doi.org/10.1016/j.avb.2016.08.001

Lurigio, A. J., & Swartz, J. A. (1999). *"Up to Speed": The Nexus Between Drugs and Crime: Theory, Research and Practice.* Retrieved from https://www.uscourts.gov/federal-probation-journal/1999/06/speed-nexus-between-drugs-and-crime-theory-research-and-practice

Maede, C. S., Fitzmaurice, G. M., Sanchez, A. K., Griffin, M. L., McDonald, L. J., & Weiss, R. D. (2011). The Relationship of Manic Episodes and Drug Abuse to Sexual Risk Behavior in Patients with Co-Occurring Bipolar and Substance Use Disorders: a 15-Month Prospective Analysis. *AIDS Behav, 15*(8), 1829-1833. https://doi.org/10.1007/s10461-010-9814-9

Magri, G. (2019). *An increasing number of families seeking shelter.* Retrieved from The Independent: https://www.independent.com.mt/articles/2019-12-21/local-news/An-increasing-number-of-families-seeking-shelter-6736217729

Medrano, M. A., Hatch, J. P., Zule, W. A., & Desmond, D. P. (2003). Childhood trauma and adults prostitution behavior in a multiethnic heterosexual drug-using population. *Am J Drug Alcohol Abuse, 29*(2), 463-486. https://doi.org/10.1081/ada-120020527

Mills, K. L., Marel, C., Darke, S., Ross, J., Slade, T., & Teesson, M. (2018). The long-term impact of post traumatic stress disorder on recovery from heroin dependence. *J Subst Abuse Treat, 89*, 60-66. https://doi.org/10.1016/j.jsat.2018.04.001

Mowbray, C. T., Ribisl, K. M., Solomon, M., Luke, D. A., & Kewson, T. P. (1997). Characteristics of dual diagnosis patients admitted to an urban, public psychiatric hospital: an examination

of individual, social, and community domains. *Am J Drug Alcohol Abuse, 23*(2), 309-326. https://doi.org/10.3109/00952999709040949

Mueser, K. T., Yarnold, P. R., Rosenberg, S. D., Swett Jr, C., Miles, K. M., & Hill, D. (2000). Substance Use Disorder in hospitalized severely mentally ill psychiatric patients: prevalence, correlates, and subgroups. *Schizophr Bull, 26*(1), 179-192. https://doi.org/10.1093/oxfordjournals.schbul.a033438

National Institute on Drug Abuse. (2019). *The Science of Drug Use and Addiction: The Basics.* Retrieved from https://www.drugabuse.gov/publications/media-guide/science-drug-use-addiction-basics

National Report on the Drug Situation in Malta. (2019). *Malta National Focal Point on Drugs and Drug Addiction*. Retrieved from https://family.gov.mt/en/Documents/EN%20Drug%20Report%202019.pdf

National Statistics Office. (2014). *Census of Population and Housing 2011*. Retrieved from https://nso.gov.mt/en/publicatons/Publications_by_Unit/Documents/01_Methodology_and_Research/Census2011_FinalReport.pdf

National Statistics Office. (2019). *Regional Statistics Malta 2019 Edition*. Retrieved from https://nso.gov.mt/en/publicatons/Publications_by_Unit/Documents/02_Regional_Statistics_(Gozo_Office)/Regional%20Statistics%20MALTA%202019%20Edition.pdf

National Statistics Office. (2020). *World Population Day Malta*. Retrieved from https://nso.gov.mt/en/News_Releases/Documents/2020/07/News2020_114.pdf

National Statistics Office. (2021). *Pre-Primary, Primary and Secondary Formal Education: 2018-2019*. Retrieved from https://nso.gov.mt/en/News_Releases/Documents/2021/01/News2021_015.pdf

National Statistics Office. (2021). *Unemployment Rate December 2020*. Retrieved from https://nso.gov.mt/en/News_Releases/Documents/2021/01/News2021_013.pdf

Nuttbrock, L. A., Rosenblum, A., Magura, S., Villano, C., & Wallace, J. (2004). Linking female sex workers with substance abuse treatment. *J Subst Abuse Treat, 27*(3), 233-239. https://doi.org/10.1016/j.jsat.2004.08.001

Patterson, B., Kyu, H. H., & Georgiades, K. (2013). Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders. *The Canadian Journal of Psychiatry, 58*(4), 210–217. https://doi.org/10.1177/070674371305800406

Ponizovsky, A. M., Rosca, P., Haklai, Z., & Goldberger, N. (2015). Trends in dual diagnosis of severe mental illness and substance usedisorders, 1996–2010, Israel. *Drug and Alcohol Dependence, 148*, 203-208. https://doi.org/10.1016/j.drugalcdep.2015.01.009

Pope, H. G., Gruber, A. J., Hudson, J. I., Cohane, G., Huestis, M. A., & Yurgelun-Todd, D. (2003). Early onset cannabis use and cognitive deficits: what is the nature of the association? *Drug Alcohol Depend, 69*, 303-310. https://doi.org/10.1016/S0376-8716(02)00334-4

Potter, W. J., & Levine-Donnerstein, D. (1999). Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research, 27*(3), 258–284. https://doi.org/https://doi.org/10.1080/00909889909365539

Poudel, A., & Gautam, S. (2017). Age of onset of substance use and psychosocial problems among individuals with substance use disorders. *BMC Psychiatry, 17*(10). https://doi.org/10.1186/s12888-016-1191-0

Quinn, P. O., & Madhoo, M. (2014). A Review of Attention-Deficit/Hyperactivity Disorder in Women and Girls: Uncovering This Hidden Diagnosis. *Prim Care Companian CNS Disord, 16*(3). https://doi.org/10.4088/PCC.13r01596

Ross, H., Rehm, J., & Walsh, G. (1997). Patterns of alcohol consumption and psychiatric disorders among Ontario adults. *SAGE Journals, 24*(3), 533-556. https://doi.org/10.1177/009145099702400306

Roxburgh, A., Degenhardt, L., & Copeland, J. (2006). Posttraumatic stress disorder among female street-based sex workers in the greater Sydney area, Australia. *BMC Psychiatry, 6*(24), 1471. https://doi.org/10.1186/1471-244X-6-24

Rucklidge, J. J. (2010). Gender differences in attention-deficit/hyperactivity disorder. *Psychiatr Clin North Am., 33*(2), 357-373. https://doi.org/10.1016/j.psc.2010.01.006

Rush, B., & Koegl, C. J. (2008). Prevalence and profile of people with co-occurring mental and substance use disorders within a comprehensive mental health system. *Can J Psychiatry, 53*(12), 810-821. https://doi.org/10.1177/070674370805301207

Sepehrmanesh, Z., Ahmadvand, A., & Moraveji, A. (2014). Comorbidity and Pattern of Substance Use in Hospitalised Psychiatric Patients. *Iran Red Crescent Med J, 16*(8). https://doi.org/10.5812/ircmj.19282

Shantna, K., Chaudhury, S., Verma, A. N., & Singh, A. R. (2012). Comorbid psychiatric disorders in substance dependence patients: A control study. *Industrial Psychiatry Journal, 18*(2), 84-87. https://doi.org/10.4103/0972-6748.62265

Silbert, M. H., & Pines, A. M. (1982). Substance Abuse and Prostitution. *Journal of Psychoactive drugs, 14*(3), 193-197. https://doi.org/10.1080/02791072.1982.10471928

Smith, J. P., & Randall, C. L. (2012). *Anxiety and Alcohol Use Disorders: Comorbidity and Treatment Considerations.* Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3860396/

Stöppler, M. C. (2021). *Definition of chasing the dragon*. Retrieved from https://www.rxlist.com/chasing_the_dragon/definition.htm

Sürücü, L., & Maşlakçı, A. (2020). *Validity and Reliability in Quantitative Research*. Retrieved from https://www.researchgate.net/publication/344379869_Validity_and_Reliability_in_Quantitative_Research

Szerman, N., Martinez-Raga, J., Peris, L., Roncero, C., Basurte, I., Vega, P., Ruiz, P., & Casas, M. (2013). Rethinking dual disorders/pathology. *Addictive Disorders & Their Treatment, 12*(1), 1-4. https://doi.org/10.1097/ADT.0b013e31826e7b6a

Temmingh, H. S., Mall, S., Howells, F. M., Sibeko, G., & Stein, D. J. (2020). The prevalence and clinical correlates of substance use disorders in patients with psychotic disorders from an Upper-Middle-Income Country. *South African Journal of Psychiatry, 28*(26). https://doi.org/10.4102/sajpsychiatry.v26i0.1473

Times of Malta. (2018). *Early school leavers in Malta are highest in the EU - Nearly a fifth leave education or training*. Retrieved from https://timesofmalta.com/articles/view/early-school-leavers-in-malta-are-highest-in-the-eu.692022

Uggen, C., & Thompson, M. (2003). The Socioeconomic Determinants of Ill-Gotten Gains: Within-Person Changes in Drug Use and Illegal Earnings. *American Journal of Sociology, 109*(1), 146-185. https://doi.org/10.1086/378036

United Nations General Assembly Special Session. (2016). *Drug and Drug Trafficking in Brazil: Trends and Policies*. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/miraglia-brazil-final.pdf

United Nations High Commissioner for Refugees. (2020). *Impact of COVID-19 on Migrants and Refugees in the Arab Region*. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_764756.pdf

United Nations Office on Drugs and Crime. (2018). *Heroin and cocaine prices in Europe and USA.* Retrieved from UNODC: https://dataunodc.un.org/drugs/heroin_and_cocaine_prices_in_eu_and_usa-2017

Van Teijllingen, E., & Hundley, V. (2002). The importance of pilot studies. *Nursing standard, 16*(40), 33-36. https://doi.org/10.7748/ns2002.06.16.40.33.c3214

Vassallo, M. (2019). *Thematic Report on National strategies to fight homelessness and housing exclusion - Malta.* Retrieved from http://www.ymcamalta.org/audit/19ff556f52.pdf

Vazquez, E. P., Gonzalez-Guarda, R. M., & De Santis, J. P. (2011). Acculturation, depression, self-esteem and substance abuse among Hispanic men. *Issues Mental Health Nursing*(32), 90-97. https://doi.org/10.3109/01612840.2010.528169

Wallace, C., Mullen, P. E., & Burgess, P. (2004). Criminal offending in schizophrenia over a 25-year period marked by deinstitutionalization and increasing prevalence of comorbid substance use disorders. *Am J Psychiatry, 161*(4), 716-727. https://doi.org/10.1176/appi.ajp.161.4.716

Walsh, S. D., Blass, , D., Bensimon-Braverman, M., Barak, L. T., & Delayahu , Y. (2014). Characteristics of Immigrant and Non-Immigrant Patients in a Dual-Diagnosis Psychiatric Ward and Treatment Implications. *Immigrant Minority Health, 16*, 1045–1054. https://doi.org/10.1007/s10903-014-9982-1

Weistreich, L., Guedj, P., Galanter, M., & Baird, D. (1995). Trends in the treatment of alcohol problems in the U.S. general population. *American Journal of Public Health, 85*(1), 55-60. https://doi.org/10.2105/ajph.85.1.55

Widom, C. S., & Kuhns, J. B. (1996). Childhood victimization and subsequent risk for promiscuity, prostitution, and teenage pregnancy: a prospective study. *Am J Public Health, 86*(11), 1607-1612. https://doi.org/10.2105/ajph.86.11.1607

Wong, G., Zane, N., Saw, A., & Ki Chan, A. K. (2016). Examining Gender Differences for Gambling Engagement and Gambling Problems Among Emerging Adults. *J Gambl Stud, 29*(2), 171-189. https://doi.org/10.1007/s10899-012-9305-1

Yeruva, R. R., Mekala, H. M., Sidhu, M., & Lippmann, S. (2019). *Synthetic Cannabinoids-"Spice" Can Induce a Psychosis: A Brief Review.* Retrieved from https://pubmed.ncbi.nlm.nih.gov/31037226/

Youdelis-Flores, C., & Ries, R. (2015). Addiction and suicide: A review: Addiction and Suicide. *American Journal on Addictions, 24*(2). https://doi.org/10.1111/ajad.12185

Appendix A

Districts

Appendix A - Districts

Southern Harbour District (1)

Birgu (Vittoriosa)

Bormla (Cospicua)

Fgura

Floriana

Senglea

Kalkara

Luqa

Marsa

Paola

Santa Luċija

Tarxien

Valletta

Xgħajra

Żabbar

Northern Harbour District (2)

Tal-Pietà

Ħal Qormi

San Ġiljan

Tas-Sliema

Is-Swieqi

Ta' Xbiex

Birkirkara

Fleur-de-Lys

Is-Swatar

Il-Gżira

Il-Ħamrun

L-Imsida

Pembroke

South Eastern District (3)

Birżebbuġa

Ħal Għaxaq

Il-Gudja

Ħal Kirkop

Marsaskala(Wied il-Għajn)

Marsaxlokk

L-Imqabba

Il-Qrendi

Ħal Safi

Iż-Żejtun

Iż-Żurrieq

Western District (4)

Ħ'Attard

Ħal Balzan

Ħad-Dingli

L-Iklin

Ħal Lija

L-Imdina

L-Imtarfa

Ir-Rabat

Is-Siġġiewi

Ħaż-Żebbuġ

Northern District (5)

Ħal Għargħur

Il-Mellieħa

L-Imġarr

Il-Mosta

In-Naxxar

San Pawl il-Baħar

Qawra

Gozo and Comino District (6)

Il-Fontana

Għajnsielem (including Comino)

L-Għarb

L-Għasri

Ta' Kerċem

Il-Munxar

In-Nadur

Il-Qala

San Lawrenz

Ta' Sannat

Ix-Xagħra

Ix-Xewkija

Ir-Rabat (Victoria)

Iż-Żebbuġ

Appendix B

FREC Approval

Appendix B – FREC Approval

From: "Research Ethics HEALTHSCI" <research-ethics.healthsci@um.edu.mt>
Sent: Saturday, May 30, 2020 4:31 PM
To: "Rosienne Farrugia" <rosienne.farrugia@um.edu.mt>
Cc: "Gary Brincat" <gary.brincat.13@um.edu.mt>; "Alexei Sammut" <alexei.sammut@um.edu.mt>
Subject: Re: UREC FORM V_11022020 5137 Gary Brincat

Dear Gary,

In view of the below, FREC's approval has been granted and you may commence with your study. Good Luck.

Sincere Regards,
Christabel

Christabel Vella
FREC Secretary

Faculty of Health Sciences
Room 117,
Dun Mikiel Xerri Lecture Centre
University of Malta

https://www.um.edu.mt/healthsciences/students/researchethics

On Fri, 22 May 2020 at 14:43, Rosienne Farrugia <rosienne.farrugia@um.edu.mt> wrote:
All requested changes have been made

Regards,
Dr Rosienne Farrugia PhD(Cantab)
Senior Lecturer ¦ Researcher ¦ Principal Investigator
Department of Applied Biomedical Science
Faculty of Health Sciences
University of Malta

Deputy Chair Faculty Research Ethics Committee
Faculty of Health Sciences
University of Malta

Tel: +356 2340 1107/3281

On Thu, 21 May 2020 at 09:20, Gary Brincat <gary.brincat.13@um.edu.mt> wrote:

Dear all,

Attached please find the amended REDP Form. The changes made to Part 1 Section 10 of the REDP Form have been highlighted in yellow.

Thank you in advance.

Kind regards,

Gary Brincat

On Fri, 15 May 2020 at 16:29, Research Ethics HEALTHSCI <research-ethics.healthsci@um.edu.mt> wrote:

Dear Gary,

FREC has reviewed the application in caption. Please address the following issue:

REPD Form

- Part 1 section 10 - explain how data will be kept safe, sensitive data should be encrypted.

Please READ and FOLLOW these instructions carefully before replying to this email. Failing to do so your documentation will be returned to you for modification without being vetted.

1. Always keep the same thread of emails. If you do not, replies will be delayed.
2. Always keep FREC and your supervisor in cc.
3. Please send revised / added documents only:
   a. With track changes / changes marked in red font
   b. Without track changes
   c. REDP Form - either highlight changes using the highlighter option of adobe or list the changes made in red font as a response to the feedback in this email.
4. Do not send documents in a zipped folder.

Please forward Dr Farrugia and me a soft copy of the requested documents only by not later than **12:00hrs on Monday 25th May 2020**.

Thanks and Regards,
Christabel

Christabel Vella
FREC Secretary

Faculty of Health Sciences
Room 255,

Appendix C

Permissions

Appendix C – Permissions

17th April 2020
Mr Stephen Sultana
Chief Executive Officer
Mount Carmel Hospital

Dear Mr. Sultana,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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In order to carry out this study I have asked both Mrs. Caroline Pace (Acting Charge Nurse at M-DDU) and Mrs. Marthese Camilleri (Acting Charge Nurse at F-DDU) on whether they would be willing to act as intermediaries for my study. They have accepted the role of intermediary which will involve retrieving files of patients admitted to their respective wards (M-DDU and F-DDU) during the period between 2018 to 2020.

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Should you have any questions about this matter, please do not hesitate to contact me by mobile (79045899), email (gary.brincat@gov.mt) or my research supervisor Dr. Alexei Sammut on office number (23401185), email alexei.sammut@um.edu.mt or my co-supervisor Dr. Josianne Scerri on office number (23401175), email josianne.scerri@um.edu.mt).

Thank you in advance for your attention to this request.

Your sincerely,

X

Gary Brincat
Registered Mental Health Nurse

X

Mr Stephen Sultana
CEO Mount Carmel Hospital

Mr. Stephen Sultana - CIB
Chief Executive Officer
Mental Health Malta

RE: Master's Dissertation - Permission and Consent Letter - Gary Brincat

Grech Anton at Health-Mental Health Services

Mon 20/04/2020 13:47

To: Brincat Gary at Health-Mental Health Services <gary.brincat@gov.mt>;

Cc: alexei.sammut@um.edu.mt <alexei.sammut@um.edu.mt>;

Gary,

Interesting study. I give approval provided there is ethical approval,

Dr. Anton Grech MD (Melita) PhD (Maastricht) MSc (Psych)(London) FRCPsych (U.K.)
Clinical Chairman (Psychiatry), Dept. of Psychiatry, within Ministry of Health, Malta
Chairman of 'Fondazzjoni Kenn ghal Sahhtek', Malta
Resident Senior Lecturer, University of Malta
Senior Research Fellow, BCMHR-Cambridge University, UK

From: Brincat Gary at Health-Mental Health Services
Sent: 18 April 2020 20:39
To: Grech Anton at Health-Mental Health Services
Cc: alexei.sammut@um.edu.mt
Subject: Master's Dissertation - Permission and Consent Letter - Gary Brincat
Importance: High

Dear Dr. Grech,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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RE: Master's Dissertation - Permission and Consent Letter - Gary Brincat

Sultana Victoria at Health-Mental Health Services

Sun 19/04/2020 10:13

To: Brincat Gary at Health-Mental Health Services <gary.brincat@gov.mt>;

Cc: alexei.sammut@um.edu.mt <alexei.sammut@um.edu.mt>;

Dear Gary
I have no objections as long as the study is cleared by the Ethics Committee.

Best of luck
Vicky

Dr Victoria Sultana
Director
Mount Carmel Hospital
Health-Mental Health Services

t +356 23304358 **e** victoria.sultana@gov.mt
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MINISTRY FOR HEALTH

MOUNT CARMEL HOSPITAL, TRIQ NOTABILE,
ATTARD, MALTA

From: Brincat Gary at Health-Mental Health Services
Sent: Saturday, 18 April 2020 20:35
To: Sultana Victoria at Health-Mental Health Services
Cc: alexei.sammut@um.edu.mt
Subject: Master's Dissertation - Permission and Consent Letter - Gary Brincat
Importance: High

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17th April 2020
Dr Anthony Dimech
Substance Abuse Consultant DDU
Mount Carmel Hospital

Dear Dr. Dimech,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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Thank you in advance for your attention to this request.

Your sincerely,

X

Gary Brincat
Registered Mental Health Nurse

X

Dr Anthony Dimech
Substance Abuse Specialist Consultant DDU

Re: Master's Dissertation - Permission and Consent Letter - Gary Brincat

Camilleri Aloisia at Health-Mental Health Services

Wed 29/04/2020 10:35

To: Brincat Gary at Health-Mental Health Services <gary.brincat@gov.mt>;

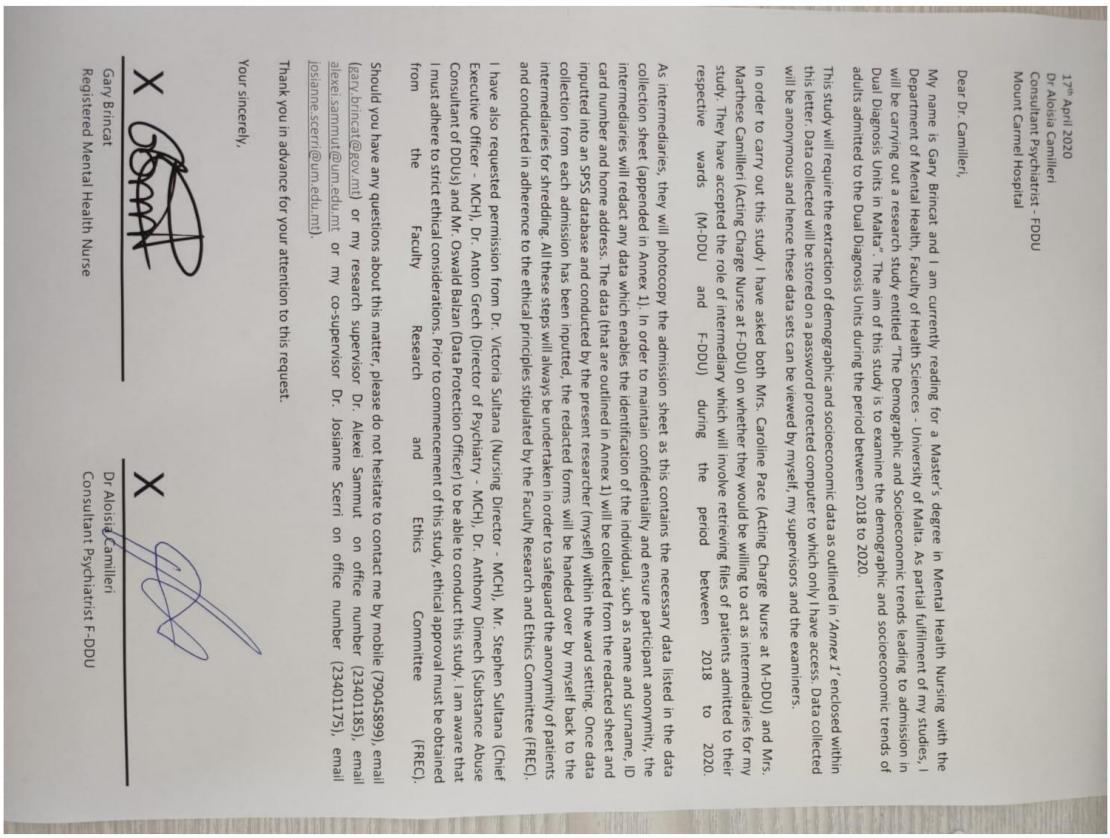
Cc: alexei.sammut@um.edu.mt <alexei.sammut@um.edu.mt>;

Dear Gary,

Please find attached my consent form, signed. Wish you the best of luck.

Regards,
Aloisia

Dr Aloisia Camilleri
MD MRCPsych(UK) MSc(Soton) CCST
Consultant Psychiatrist
Reg 3008



17th April 2020
Dr Aloisia Camilleri
Consultant Psychiatrist - FDDU
Mount Carmel Hospital

Dear Dr. Camilleri,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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Thank you in advance for your attention to this request.

Your sincerely,

X

Gary Brincat
Registered Mental Health Nurse

X

Dr Aloisia Camilleri
Consultant Psychiatrist F-DDU

From: Brincat Gary at Health-Mental Health Services <gary.brincat@gov.mt>
Sent: Saturday, April 18, 2020 8:46:09 PM
To: Camilleri Aloisia at Health-Mental Health Services <aloisia.camilleri@gov.mt>

9th April 2020
Mrs. Caroline Pace
Acting Charge Nurse – MDDU
Mount Carmel Hospital

Dear Mrs. Pace,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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In order to carry out this study I would like to ask whether you would be willing to act as an intermediary for my study. Your role will involve retrieving files of patients admitted to your ward (M-DDU) during the period between 2018 to 2020. As intermediary, I am requesting that you photocopy the admission sheet as this contains the necessary data listed in the data collection sheet (appended in Annex 1). In order to maintain confidentiality and ensure participant anonymity, I kindly ask that all data enabling the identification of the individual, such as name and surname, ID card number and home address are to be redacted. Following which data inputting from the redacted sheet onto the data collection sheet (Annex 1) will be conducted by the present researcher and within the ward setting. Once data collection is complete I am requesting that the redacted forms can be handed over to you for shredding.

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Thank you in advance for your attention to this request.

Yours sincerely,

X

Gary Brincat
Registered Mental Health Nurse

X

Mrs. Caroline Pace
Acting Charge Nurse at M-DDU

11th April 2020
Mrs. Marthese Camilleri
Acting Charge Nurse – FDDU
Mount Carmel Hospital

Dear Mrs. Camilleri,

My name is Gary Brincat and I am currently reading for a Master's degree in Mental Health Nursing with the Department of Mental Health, Faculty of Health Sciences - University of Malta. As partial fulfilment of my studies, I will be carrying out a research study entitled "The Demographic and Socioeconomic trends leading to admission in Dual Diagnosis Units in Malta". The aim of this study is to examine the demographic and socioeconomic trends of adults admitted to the Dual Diagnosis Units during the period between 2018 to 2020.

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In order to carry out this study I would like to ask whether you would be willing to act as an intermediary for my study. Your role will involve retrieving files of patients admitted to your ward (F-DDU) during the period between 2018 to 2020. As intermediary, I am requesting that you photocopy the admission sheet as this contains the necessary data listed in the data collection sheet (appended in Annex 1). In order to maintain confidentiality and ensure participant anonymity, I kindly ask that all data enabling the identification of the individual, such as name and surname, ID card number and home address are to be redacted. Following which data inputting from the redacted sheet onto the data collection sheet (Annex 1) will be conducted by the present researcher and within the ward setting. Once data collection is complete I am requesting that the redacted forms can be handed over to you for shredding.

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Thank you in advance for your attention to this request.

Yours sincerely,

X

Gary Brincat
Registered Mental Health Nurse

X

Mrs. Marthese Camilleri
Acting Charge Nurse F-DDU

Research Study Permission

Balzan Oswald at Health-Mental Health Services

Wed 29/04/2020 12:28

To: Brincat Gary at Health-Mental Health Services <gary.brincat@gov.mt>;

Dear Mr. Brincat,

I refer to your request for permission to carry out a research study in reading for a Masters in Mental Health.

After I consulted my supervisor it was concluded that;

…….since no identifiable information is needed by the researcher and the categories of data needed for the study are identified, (the 38 points) and since hospital staff members are willing to access the medical files and provide the student with the needed information, the student would not be accessing any personal data as such, since none of the information provided would be identifying any natural persons and therefore no personal data would be shared (since 'personal data' is data which relates to an identified a natural person). Therefore it is very Important that you follow the method to compile the research as set in your proposal.

Asking for individual consent from so many patients would also not be easy and would take needless time and resources.

I am herewith to inform you that permission to carry out your dissertation is **Approved.**

Ossie Balzan
Principal
Mount Carmel Hospital
Health-Mental Health Services

t +356 23304014 **e** oswald.balzan@gov.mt
https://health.gov.mt |
[www.publicservice.gov.mt]www.publicservice.gov.mt

MINISTRY FOR HEALTH

MOUNT CARMEL HOSPITAL, TRIQ NOTABILE,
ATTARD, MALTA

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Appendix D

Data Collection Sheet

Appendix D – Data Collection Sheet

Data Collection Sheet 1

Number	Gender	Age	Nationality	Region	Maritial Status	Children	Household	Living Status	Support	Education Level	Employment	Employment Type	Monthly income	Smoker	Forensic History	Pending Court Case	Probation

Data Collection Sheet 3

Cost of Drug Dependence	Drug Duration	Age of drug onset	Drug Abstinence	Rehabilitation Programme	Gambling Addiction	Family Hx addiction	Parasuicide	Alcohol Dependence	Methadone	Buprenorphine/Suboxone