

Patterns of Referrals and Diagnoses in Mental Health Facilities: Montserrat, 2020-2023

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1. Background

Mental health disorders represent an important and growing contributor to the global disease burden [1]. Small island developing states, such as Montserrat, are recognized for facing unique challenges and opportunities in preventing and managing mental health conditions. Small populations are associated with a lack of anonymity and privacy which given the stigma surrounding mental health issues remains a significant barrier to seeking appropriate care [2]. In addition, remote islands have increased potential for social isolation which could amplify the well-established link between loneliness and adverse mental health outcomes. However, belonging to a small close-knit community may also serve as a protective factor [3]. Limited resources for mental health services can also be a challenge including the shortage of mental health professionals, insufficient funding for mental health programmes, and a lack of accessible mental health facilities [2].

In Montserrat, mental health services are community-based, encompassing the diagnosis, treatment, and ongoing care of patients with mental illness. St. John's health center is the main treatment facility where care is provided by a team consisting of a clinical psychologist and psychiatric nurses. A psychiatrist provides comprehensive and specialized care through regular week-long visits each quarter and weekly telehealth consultations. Care is also provided within the community, including at Oriole Villa, a residence for individuals with mental health conditions, as well as in prisons, assisted living homes, and various private residences. The team works proactively to undertake health screening, which includes mental wellbeing screening tools in the workplace for the employees of larger organisations. Follow-up in the form of group support for those who screen positive is provided by the psychologist. Education is also offered to the community in order to improve mental health literacy and knowledge, including a weekly radio programme entitled: "Enhancing your mental health." Persons requiring hospitalisation are admitted to the Glendon Hospital. Although there are no designated beds for psychiatric patients or trained mental health professionals assigned, the medical ward has a seclusion room for such admissions if required.

In order to develop relevant and responsive policies and services, a greater understanding of mental health disease burden in Montserrat and how its changing over time is required.

2. Aims and objectives

2.1 Aim

This project aims to review mental health diagnoses and referrals in Montserrat in order to provide valuable insights to policymakers and planners, facilitating informed decisions for improved mental health services and resource allocation.

2.2 Objectives

1. Describe the individuals accessing mental health services between April 2020 to December 2023 in terms of time and person.
2. Review any changes in patterns of diagnoses and referrals overtime

3. Methods

3.1 Study population

All individuals accessing mental health services at St Johns Clinic and other community services from April 2020 to December 2023.

3.2 Data sources and data collection

A dataset containing all individuals who presented at St Johns Clinic and other community services between April 2020 and December 2023 was obtained. The dataset was maintained by mental health staff, with individuals being prospectively added at first presentation, and data being updated with subsequent consultations. Data available included the first month and year of presentation, the year of onset, age, sex, diagnosis, employment status, comorbidities, level of function, source of referral and any screening/assessments and therapies used.

3.3 Data management and storage

Data was securely stored on google sheets and accessed for analysis using R. All data was managed, and processed in accordance with Caldicott data protection principles and GDPR policies.

3.4 Data analysis

Data was imported into R Studio where it was cleaned and analysed. Individuals presenting to mental health services were summarised by time and person with tables and graphs. Chi squared calculations were used to compare the distribution of different diagnoses for clients first accessing services before and during the study period.

As the exact date of first presentation was not available, age at first presentation was estimated using date of birth and the first day of the month of presentation. Age at onset was estimated at the age on the 1st January on the year of onset. Diagnoses

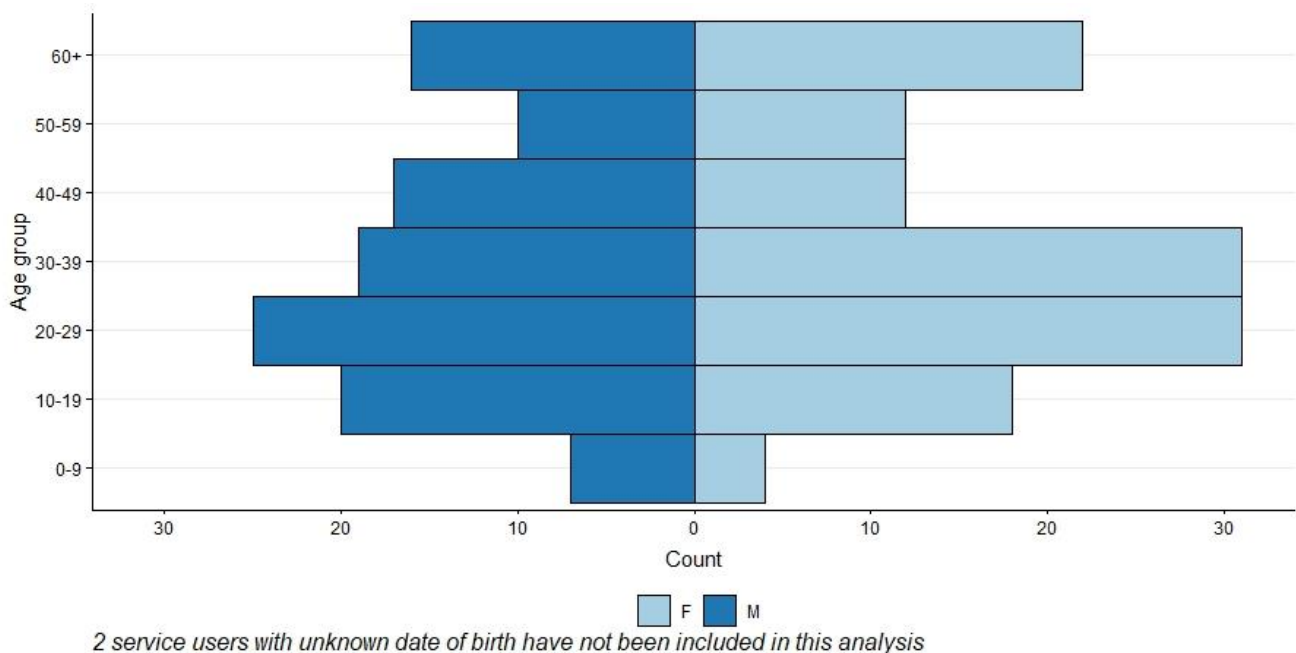
were grouped into categories using the Diagnostic and Statistical Manual of Mental Illnesses version 5 (DSM-5) classifications (see Appendix) [4]. Individuals who accessed services but did not receive a diagnosis as they did not meet the DSM-5 were categorised as ‘Did not meet the DSM-5 criteria’.

4. Results

4.1 Demographic and diagnostic profiles

Between April 2020 and December 2023, 246 persons accessed mental health services. Among them, 55.3% (131/246) were female with a median age at first presentation of 32 years, ranging from 2 to 95 years (Figure 1). The largest proportion of individuals accessing services were diagnosed with depressive disorders (depression and disruptive mood dysregulation disorder), (25.2%, 62/246), followed by psychotic disorders (including Schizophrenia and Schizo-affective disorder) (23.6%, 58/246) and anxiety disorders (anxiety and post traumatic distress syndrome (PTSD))(13.0%, 32/246) (Figure 2).

Figure 1: Distribution of patients accessing mental health services by age of first presentation and sex, Montserrat, April 2020 – December 2023 (n=244)



While the utilisation of mental health services by both males and females was relatively balanced, variations were observed in the gender distribution among different diagnoses (Figure 2). The majority of individuals diagnosed with depressive disorders (87%, 54/62) and anxiety disorders (78%, 25/32) were female. In particular, diagnoses were highest amongst women presenting between the ages 20 and 40 years old, with this demographic accounting for just over half (59%, 32/54) of all depressive disorder diagnoses and 41% (13/32) of

anxiety disorders (Figure 3). Among women diagnosed with depressive disorders, a slight disparity was observed between the age of symptom onset and the age at their initial presentation to mental health services. Specifically, a higher proportion of females aged 10 to 19 experienced symptom onset compared to those who sought mental health services. For anxiety disorders, women presenting between the ages of 40 to 60 years exhibited the longest average time between symptom onset and their first presentation at mental health services.

In comparison, the proportion of males were higher amongst diagnoses of substance misuse (88%, 21/24), neurodevelopmental disorders (80%, 8/10), behavioural concerns (75%, 15/20), cognitive/neurological disorders (8/12, 67%) and psychotic disorders (59%, 34/58). The prevalence of diagnoses related to behavioral concerns and neurodevelopmental disorders were highest among males initially presenting in childhood or adolescence. Specifically, males aged between 10 and 19 years constituted 35% (7/20) of behavioral concern diagnoses, while those presenting below 10 years old represented 50% (5/10) of neurodevelopmental diagnoses. In both cases of behavioral concerns and neurodevelopmental disorders, a greater proportion of males experienced symptom onset before the age of 10 compared to the number of individuals under 10 years old seeking assistance from mental health services. For psychotic disorders, men presenting between the ages of 20 and 40 years accounted for a high proportion of diagnoses (29%, 17/58). Notably, a higher proportion of males experienced symptom onset between the ages of 10 and 19 compared to those presenting at services.

Figure 2: Patients accessing mental health services by diagnosis and sex, Montserrat, April 2020 – December 2023 (n=246)

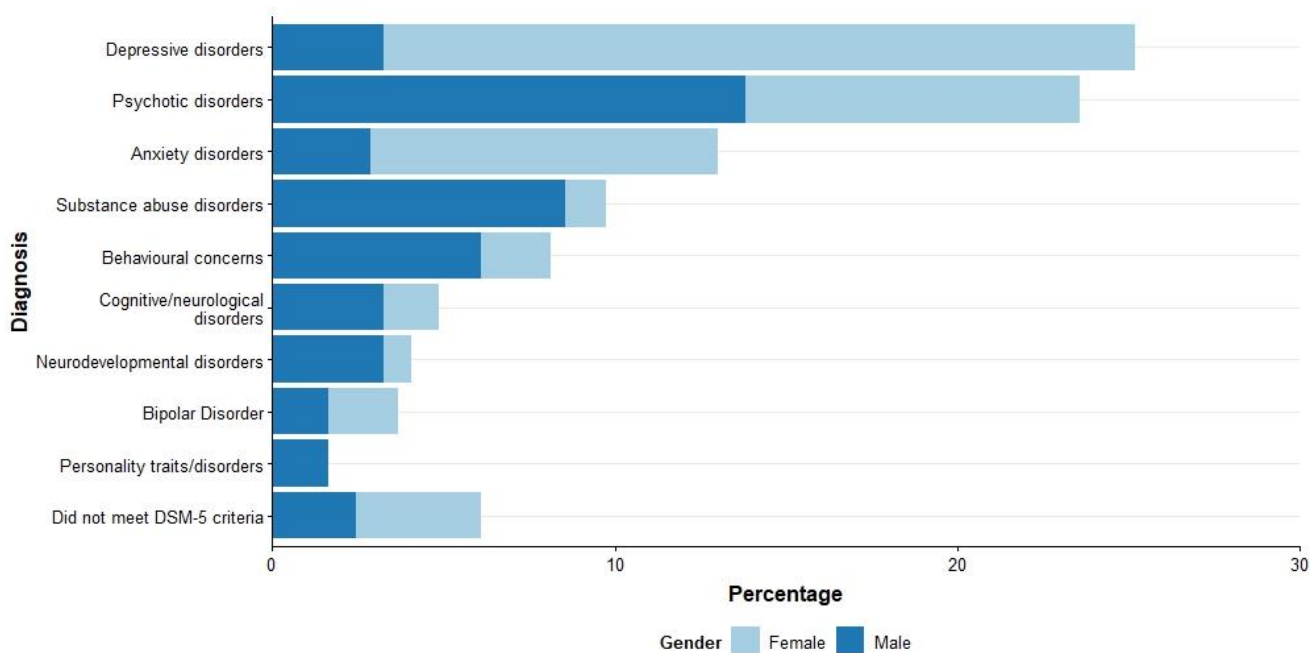
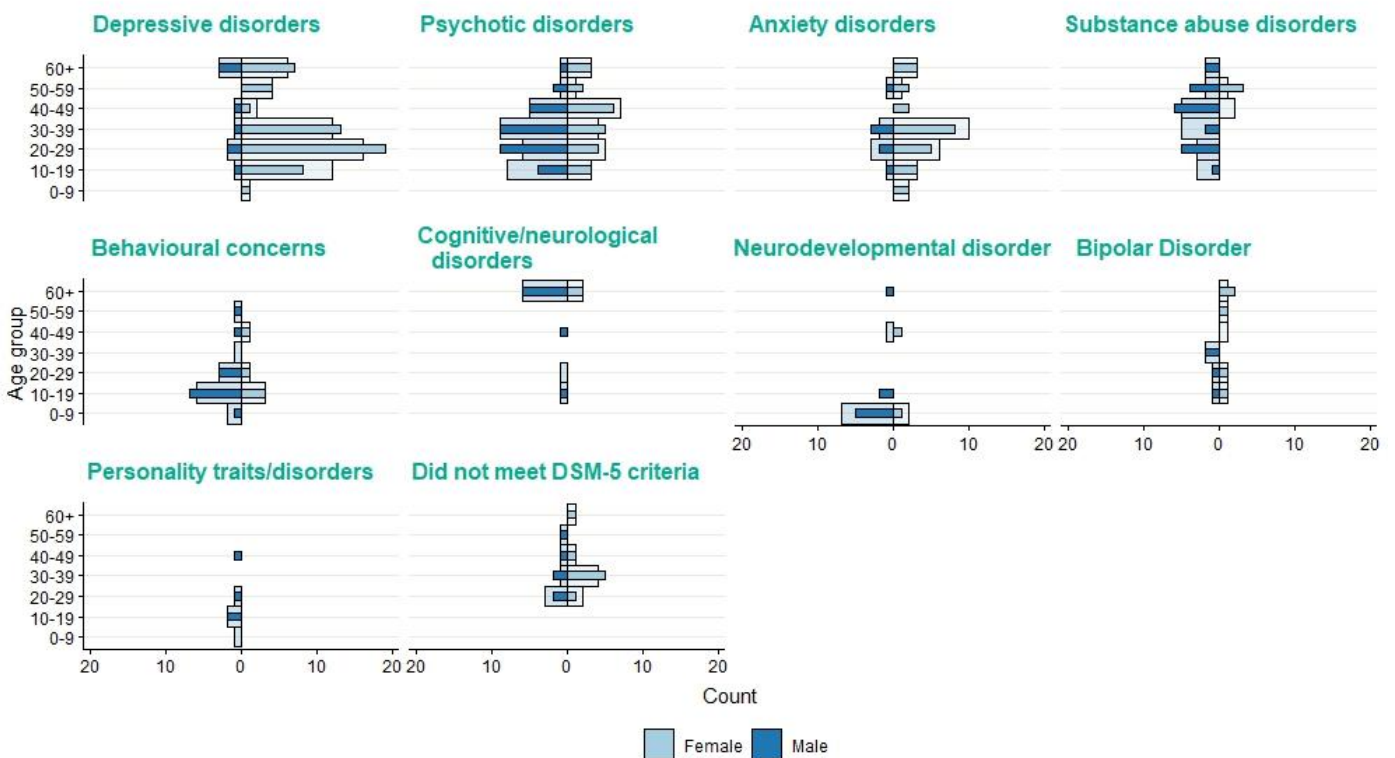


Figure 3: Distribution of patients accessing mental health services by diagnosis, sex, and age, with age at first presentation displayed on top of age at onset, Montserrat, April 2020 – December 2023 (n=246)



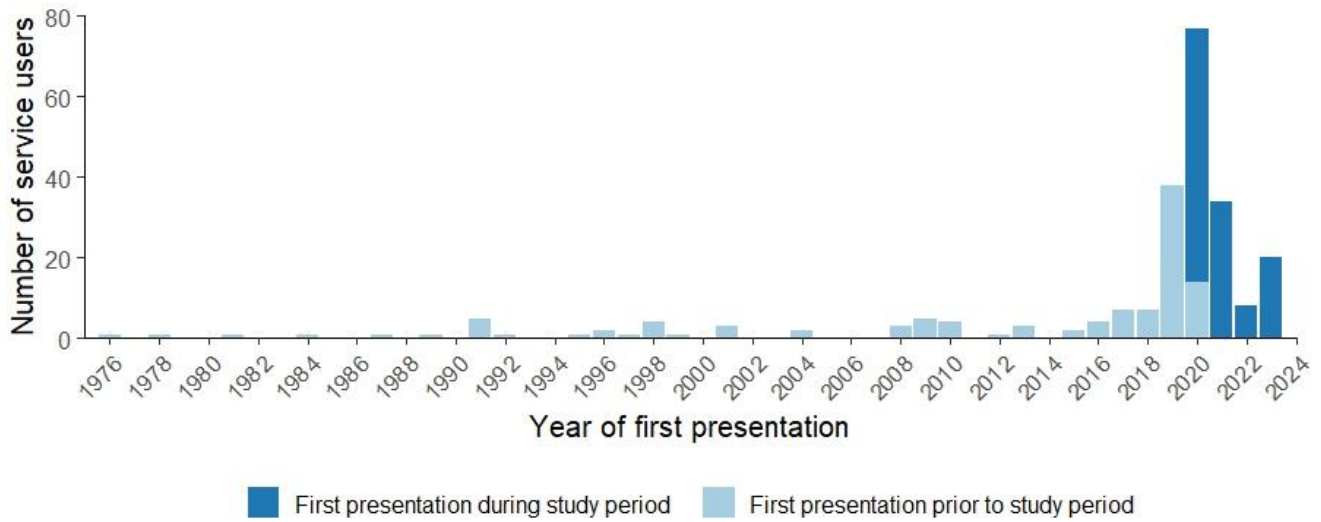
Service users at age of presentation shown on top of services users at age of onset

12 service users were excluded from this analysis due to incomplete information regarding either date of onset or date of birth

4.2 Trends in mental health presentations

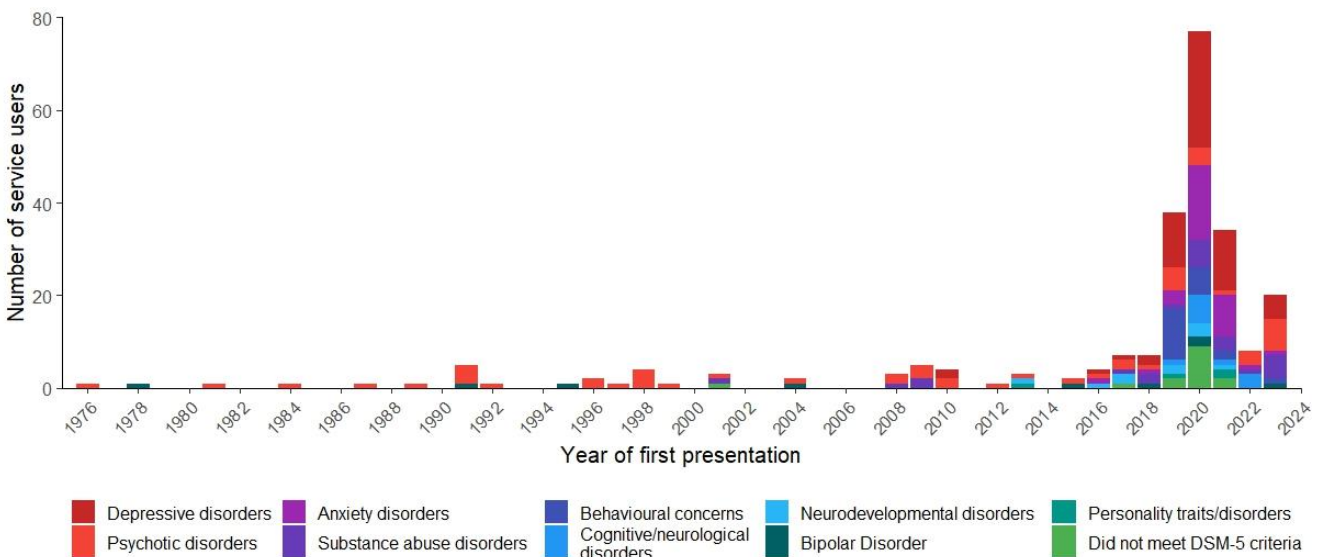
During the period from April 2020 to December 2023, 55% (136/246) of individuals seeking mental health services were first-time service users, while the remaining 45% had already accessed services before April 2020 (Figure 4). The most longstanding service user initially accessed services in 1976. Amongst the patients who were accessing services prior to the study period, there was a higher proportion of service users with long term and complex diagnoses, such as psychotic disorders (34% vs 15%, $p=0.04$) (Figure 5). In addition these patients were also less likely to have diagnoses of anxiety disorders (7% vs 18%, $p<0.01$) and substance abuse disorders (6% vs 13%, $p=0.04$).

Figure 4: Distribution of patients accessing mental health services between April 2020 and November 2023, by year of first presentation, Montserrat, (n=239)



7 service users with unknown month of first presentation have not been included in this analysis

Figure 5: Distribution of patients accessing mental health services between April 2020 and December 2023, by year of first presentation and diagnosis, Montserrat, (n=239)

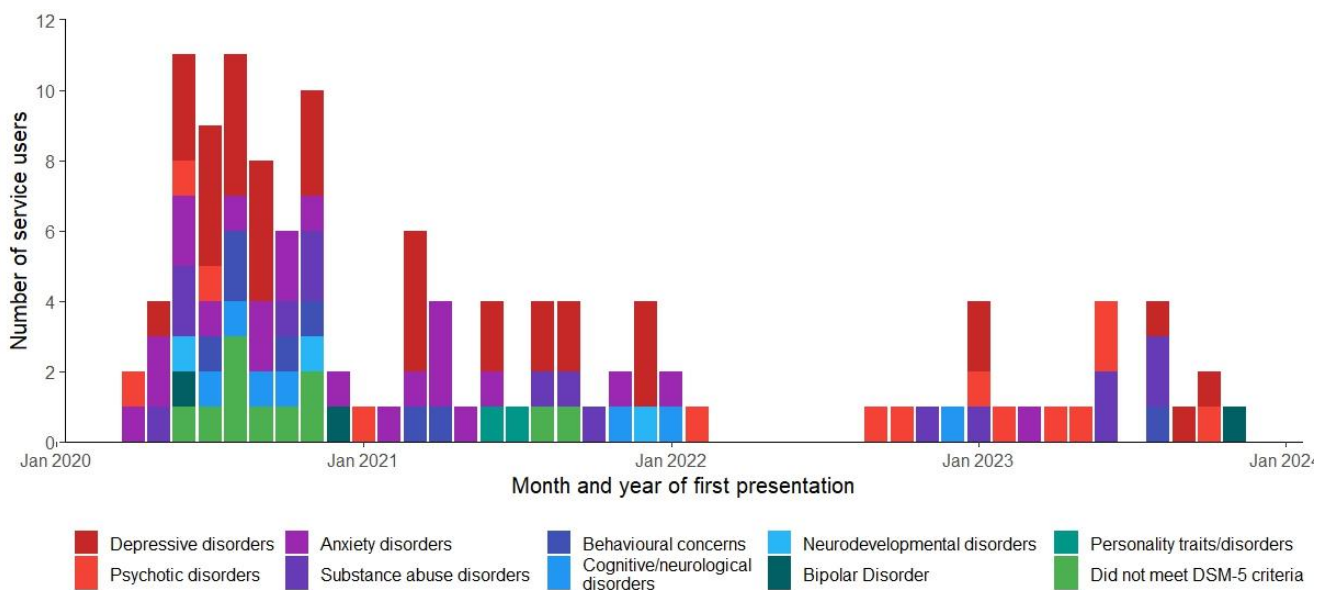


7 service users with unknown month of first presentation have not been included in this analysis

Between 1 April 2020 and 31 December 2020, there were 63 patients who accessed services for the first time. This contrasts with 33 patients throughout the entirety of 2021, 7 in 2022 and 20 in 2023 (Figure 6). The mental health services consistently experienced a high number of new presentations from June to November 2020, averaging 9 per month, with a peak of 11 presentations noted in June and August of that year. In 2020 (April to December), depressive disorders accounted for the largest proportion of diagnoses (30%, 19/63),

followed by anxiety disorders (21%, 13/63), and substance abuse disorders (10%, 6/63). Additionally, there were 8 individuals presenting with marital conflict, classified in this analysis under 'Did not meet DSM-5 criteria'. Although the number of new presentations decreased in 2021 (n=33), the distribution of diagnoses remained similar, with depressive disorders (39%, 13/33), anxiety disorders (24%, 8/33) and substance abuse disorders (9%, 3/33) remaining the 3 most common diagnoses. In 2022, the number of new presentations reduced further (n=7), with no new patients accessing services between the months of March and August 2022. During 2022, the most common diagnoses for new patients presenting to the clinic were psychotic disorders (43%, 3/7). In 2023, numbers of new presentations increased from the previous year (n=20); however, psychotic disorders remained the most common diagnosis (35%, 7/20), followed by depressive disorders (25%, 5/20) and substance abuse disorders (25%, 5/20).

Figure 6: Patients presenting to mental health services for the first time between April 2020 and December 2023, by month of first presentation and diagnosis, Montserrat



4.3 Source of referral

The majority of patients sought mental health services through referrals from friends, family, or themselves (36%, 88/246), followed by social services (14%, 34/246) and medical professionals (10%, 24/246)(Figure 7). While a large portion of referral sources preceding the study period are unknown (26%, 29/110), self referrals or recommendations from friends and family remained the most common source for all referrals made prior to April 2020 (35%, 39/110). Despite a substantial increase in first presentations to mental health services in 2020, the distribution of referrals by source remained similar to 2019, with self-referrals and referrals from friends and family being the most prevalent (35%, 27), followed by social services (22%, 17/77) and hospital referrals (17%, 13/77). The decline in the number of new

presentations in 2021 coincided with a decrease in the percentage of referrals originating from social services and the hospital. Social services did not make any referrals, while the hospital only made one referral. In 2022, with a further decline in new presentations (n=7), referrals were exclusively made by managers, medical professionals, and self-referrals or referrals from family and friends. In 2023, with a slight increase in new presentations to 20, the primary sources of referral reverted to referrals from friends, family and self (25%, 5/20), as well as social services (25%, 5/20).

Figure 7: Patients accessing mental health services between April 2020 and December 2023 by source of referral, Montserrat

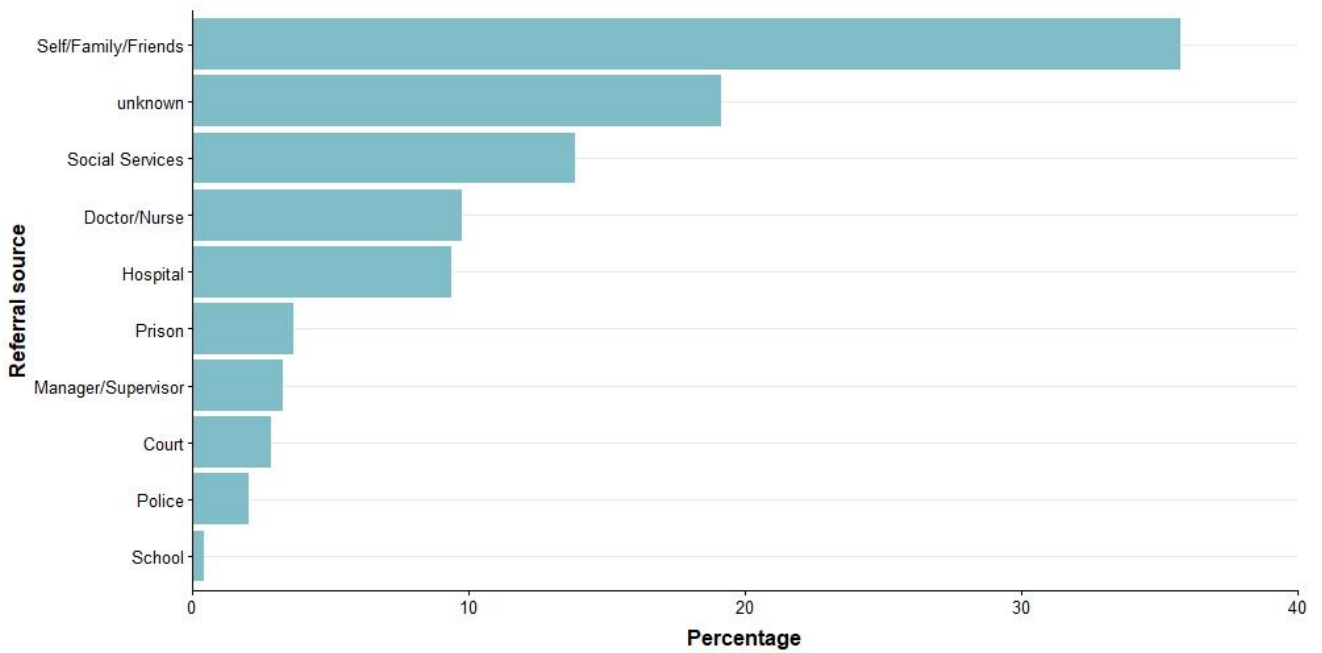
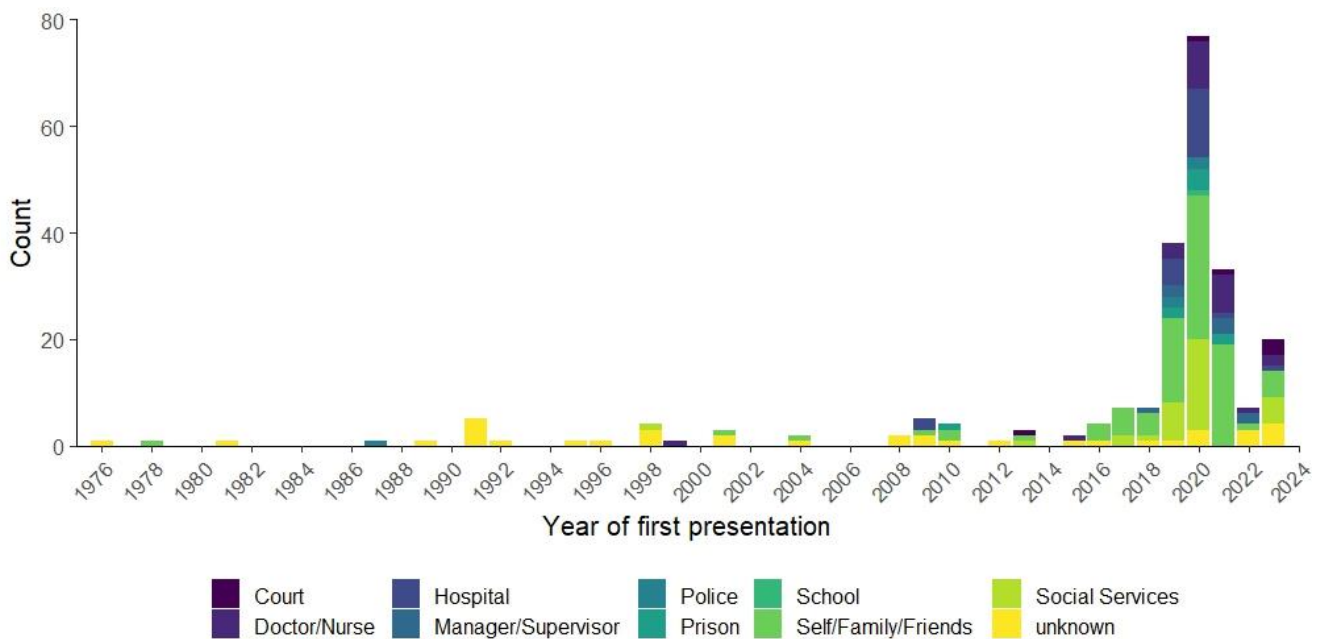


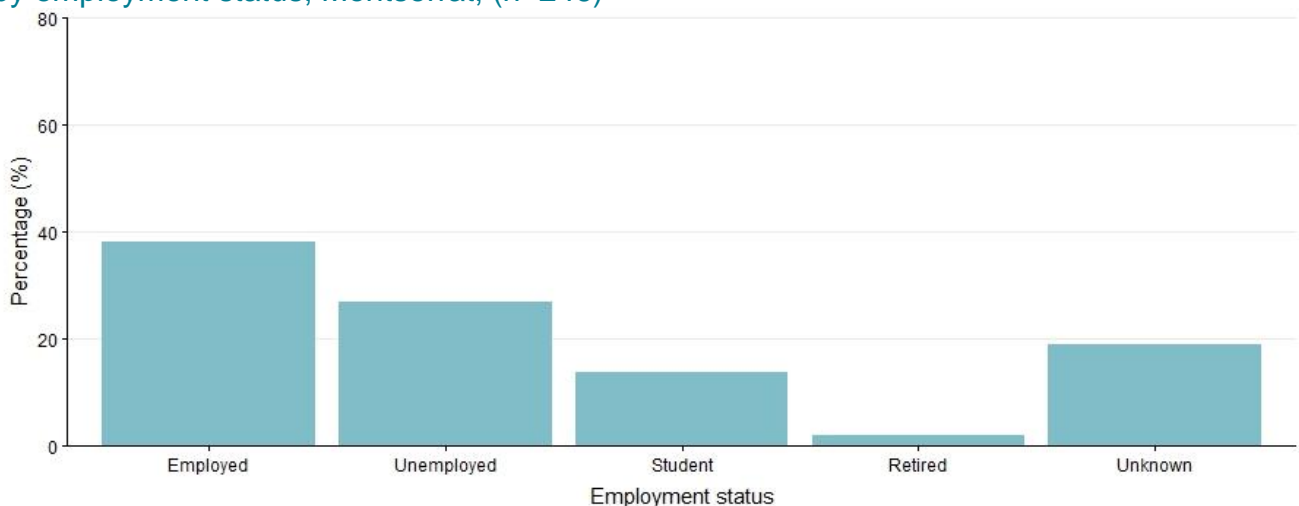
Figure 8: Patients accessing mental health services between 2020 and December 2023 by source of referral and year of first presentation, Montserrat



4.4 Employment

Just under 40% (90/230) of patients accessing mental health services were known to be in employment, with 24% being unemployed (56/230) and 19% having an unknown status. Amongst those who were unemployed, the highest proportions of diagnoses were psychotic disorders (24%, 16/66) and depressive disorders (20%, 13/66).

Figure 9: Patients accessing mental health services between April 2020 and December 2023 by employment status, Montserrat, (n=246)

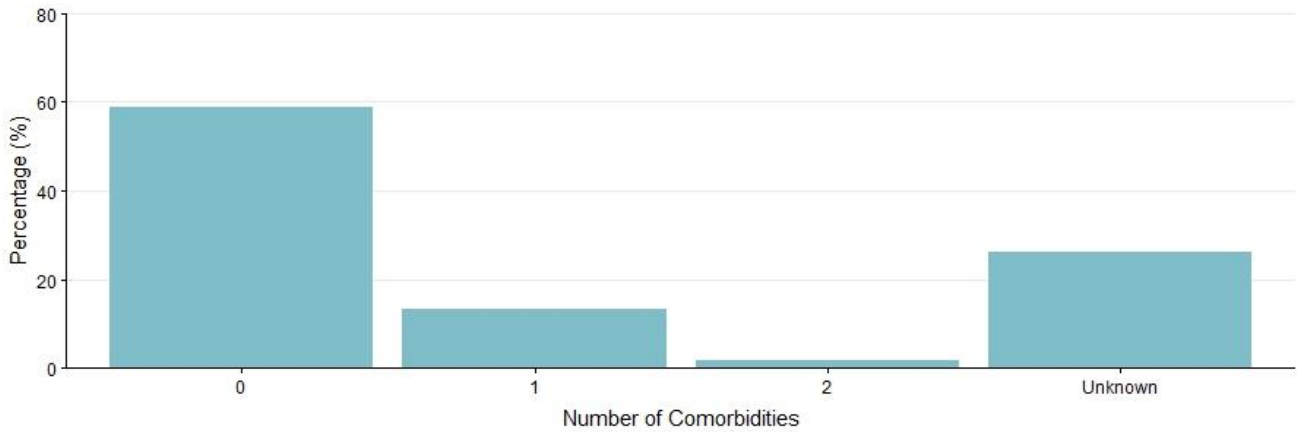


4.5 Co-morbidities

The majority of patients accessing mental health services were recorded as having no comorbidities (63%, 145/246), while 15% had at least one comorbidity documented (37/246)

and 25% had missing information (24%, 64/246). The most commonly reported comorbidities included hypertension (22%, 8/37), diabetes (17%, 6/37), depression (14%, 5/37), and mild intellectual difficulties (11%, 4/37).

Figure 10: Patients accessing mental health services between April 2020 and December 2023, by number of comorbidities, Montserrat, (n=246)



4.6 Method of diagnosis

Every individual accessing mental health services in Montserrat underwent a clinical interview and observation, with diagnoses determined according to DSM-5 criteria. For the majority of patients (90%, 207/246) the clinical interview was sufficient to make a diagnosis, and no further standardised instruments were used. Only a small subset of patients underwent assessment with a standardised instrument, with the Million Clinical Multi-Axial Inventory-III being the most frequently utilised. (5%, 12/246) (Table 1). Other instruments used included the mini-mental state examination, the dementia severity rating scale, the adaptive behaviour assessment system.

Table 1: Number and percentage of mental health patients who underwent assessment with a standardised instrument, Montserrat (n=246)

Diagnostic instrument	n	%
Millon Clinical MultiAxial Inventory-111	12	5
Mini-Mental State Examination	3	1
Dementia Severity Rating Scale	2	1
Adaptive Behavior Assessment System	2	1

4.7 Screening instruments

At least one screening instrument was used on 15% (34/246) of patients. The Beck Depression Inventory was the most common instrument used on 7% (17/246) of patients, followed by the incomplete sentence blank form at 4% (10/246).

Table 2: Number and percentage of mental health patients who underwent screening, by type of instrument used, Montserrat, (n=37)

Screening instrument	n
Beck Depression Inventory	17
Incomplete Sentences Blank Form	10
Patient Health Questionnaire (PHQ-9)	3
PTSD symptoms scale	3
Hospital Anxiety and Depression Scale	2
State and Trait Anger Scales	2
Total	37

Note: 2 patients underwent screening with more than 1 instrument.

4.8 Psychological therapy

A form of psychological therapy was delivered to 66% (163/246) of patients. The most common form of therapy given was cognitive behavioural therapy (CBT), which was delivered to 59% (145/246) of patients. Other commonly used therapies included behaviour modification therapy 7% (17/246) and couples therapy 4% (9/246).

Table 3: Number of mental health patients who underwent therapy, by type, Montserrat, (n=191)

Psychological therapy	n
CBT	145
Behavior Modification Training	17
Couple therapy	9
Psychodynamic therapy	7
Family therapy	5

Psychoeducation	3
Supportive therapy	3
Interpersonal therapy	2
Total	191

Note: 20 patients received more than 1 type of therapy.

4.8 Medication

The majority of clients (71%, 174/246) accessing services during the study period had mild conditions or diagnoses that required only psychological intervention for resolution. The remaining 29% (72 out of 246) were prescribed medication, representing individuals with moderate to severe mental health conditions. Psychotic disorders were the most common diagnosis among those prescribed medication (68%, 49 out of 72). Only 9 individuals diagnosed with psychotic disorders were not on prescribed medication: 3 were non-compliant, 3 had their medication discontinued, and the status of the remainder was unknown.

5. Discussion

Between April 2020 and December 2023, a total of 246 individuals accessed mental health services in Montserrat. The most common diagnoses among patients accessing services during this period included depressive, psychotic, and anxiety disorders. Just over half (55%) of these patients were accessing services for the first time. A sustained increase in the number of first presentations was observed between June and November 2020, coinciding with the onset of the COVID-19 pandemic. During this period various restrictions such as lockdowns and curfews were implemented. The association between the pandemic and worsening mental health is well-documented, particularly in Latin America and Caribbean countries, where heightened rates of mental health disturbances due to COVID-19 have been noted [5,6]. The primary reasons for seeking mental health services in Montserrat during this time were depression, anxiety, substance abuse, and marital conflicts. The uncertainty surrounding the pandemic, encompassing concerns regarding personal health, financial stability, and the well-being of loved ones, likely contributed to increased levels of stress and anxiety among many individuals. In addition, the pandemic might have exacerbated pre-existing mental health conditions, prompting individuals to seek help.

By 2021, numbers of individuals accessing mental health services for the first time had returned to similar levels as 2019, with numbers decreasing to lower levels throughout 2022 and 2023. It is plausible that the initial surge in mental health presentations during 2020, lead to a subsequent decrease in new presentations in the following years. However, other factors such as shifts in referral practices and variations in mental health awareness may have also played a role in these fluctuations in presentations.

Overall the most common source of referral to mental health services in Montserrat was from friends, family members, or self-referrals. This could indicate a relatively good level of mental health literacy within the community, where individuals demonstrate awareness of mental health concerns, recognize when help is needed, and take proactive steps to seek assistance. However, a high percentage of self-referrals or referrals from friends and family may not necessarily indicate good mental health literacy if individuals are seeking help as a last resort. There is evidence indicating that some patients postponed accessing mental health services, as shown by a lag between the onset of symptoms and the utilisation of available services. This is particularly pronounced among adolescent females experiencing depressive symptoms and adolescent males exhibiting signs of psychosis. Various factors could be contributing to this, including stigma and a lack of awareness and education surrounding mental health issues. The fear of being stigmatized or discriminated against by family members, friends, or the broader community can act as a significant deterrent for individuals accessing help. Furthermore, delays in seeking assistance may stem from a limited understanding of mental health issues and the treatment options available, resulting in delays in recognising and addressing mental health problems. Consequently, services are sometimes accessed only when acute mental health episodes arise, which timely intervention could have prevented. These challenges highlight the importance of sustaining community initiatives such as the weekly radio program "Enhancing your mental health," which endeavors to enhance mental health literacy within the community. Nonetheless, they also emphasize the need for expanded outreach efforts, particularly targeting adolescents and their parents.

5.2 Limitations

There were limitations with the data used. The lack of availability of exact presentation and onset dates means that estimations were made for both age at presentation and age at onset. Age at presentation was approximated as the age on the first day of the presentation month, while age at onset was determined as of the first of January for the onset year. Therefore, it is likely some individuals were assigned to incorrect age categories.

Furthermore, there are limitations when observing trends within the data. Trends were observed based on the month of initial presentation, with nearly half of all patients accessing mental health services before the study period commenced. It's important to note that the count of presentations preceding the study's onset will be underestimated. Individuals who first presented prior to the start of the study period would only be included in the analysis if they continued accessing services during the study period. Therefore, the patients accessing services prior to the start of the study period are more likely to have complex conditions that require long-term care. Additionally, the relatively low sample size presents challenges in identifying significant trends over time, as it becomes difficult to differentiate genuine trends from random fluctuations.

In addition, this study faces limitations due to missing data. Since the dataset relies on manual data entry, some fields remain incomplete for certain patients. Moreover, the accuracy of the data is only guaranteed at the time of input; hence, certain fields may no longer reflect the current status for some patients. Extracting data from the new Health

Information System in the future would enhance data availability and ensure its accuracy is as up-to-date as possible.

5.3 Recommendations

- This study provides a descriptive overview of patients accessing mental health services. Further investigation through cause-and-effect analysis would be needed to identify the risk factors associated with mental health in Montserrat.
- Incorporating the Health Information System for future reporting would facilitate a more thorough analysis of mental health service utilisation.
- Implementing protocols aimed at empowering community members with self-management strategies could enhance mental health support within the community.
- Encourage ongoing community education initiatives to tackle stigma-related barriers that hinder individuals from seeking assistance for mental health concerns. Consider incorporating mental health education programs targeted towards teenagers.

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6. Appendix

DSM-5 categorisation

Grouping	Diagnosis
Anxiety Disorder	Anxiety Disorder
	Post Traumatic Stress Disorder
Behavioural concerns	Behavior Problem
	Conduct Disorder
	Problematic Anger
Bipolar Disorder	Bipolar Disorder
Cognitive/neurological disorders	Cognitive Impairment
	Dementia
	Seizure Disorder
Depressive disorder	Depression
	Depression with suicidal ideation
	Postpartum Depression
	Disruptive Mood Dysregulation Disorder
Developmental disorders	Attention Deficit and Hyperactive Disorder
	Intellectual Disability
	Autism Spectrum Disorder
Personality traits/disorders	Antisocial Personality Traits
	Avoidant Personality Traits
	Narcissistic Personality Traits
Psychotic disorders	MDD, Psychotic Features
	Schizo-affective disorder
	Schizophrenia
	Delusional disorder
Substance abuse disorders	Substance Abuse (Alcohol)
	Substance Use (Marijuana)
Did not meet criteria	Undiagnosed
	Unknown
	Marital Conflict