Correlates of Re-hospitalization and Dis-engagement During the First Three Years of Psychotic Illness, in a Psychiatric Facility in Abu Dhabi, UAE

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Abstract: The purpose of this study is to describe potential precipitants of re-hospitalization and dis-engagement during the first three years of diagnosing a psychotic episode, in Abu Dhabi, United Arab Emirates (UAE). A retrospective cohort study that included 56 patients, with the first episode of psychosis (FEP). 55.4% of the sample were men, 52% were single, 80% were of Arab ethnicity, and 50% were unemployed. The mean age was 29.51 years old. 42% had non-affective psychosis. During the first three years of psychosis, more than three-quarters of FEP patients were re-hospitalized. The rate of service disengagement was 64.8%. Bipolar affective disorder and schizophrenia patients had a higher re-hospitalization rate compared to patients with other diagnoses ($p<0.001$). Re-hospitalization was significantly higher for males and single patients ($p=0.047$). There was no significant correlation between re-hospitalization and the length of hospital stay, with the period of untreated psychosis, or with age at onset. Being single was the only significant correlate with service dis-engagement ($p<0.001$). Single status ($p=0.038$) and Non-smoking ($p=0.008$) were the only significant correlate with re-engagement. We concluded that re-hospitalization and dis-engagement rates were high in Abu Dhabi, and the predictors were unmodifiable factors such as gender, marital status, and psychiatric diagnoses. The findings of this study could be used to develop future services, such as establishing dedicated assertive intervention programs for patients after their first episode of psychosis to improve treatment outcomes.

Keywords: First Episode Psychosis, Psychotropic Medications, Re-hospitalization, Length of Stay, Disengagement, Abu Dhabi

1. Introduction

The first psychotic episode is a critical phase in the illness's progression, and its management is crucial in determining the long-term outcome of the illness. [1] More than half of the patients who have had one episode of psychosis will have another episode within three years, with the risk of future episodes increasing with time. Within the first five years of follow-up, 37% of young people with first-episode psychosis (FEP) had at least one relapse, with more than half of them requiring hospitalization. [2] One of the most serious challenges in psychiatry is re-hospitalization. It has a significant negative impact on the quality of life and the number of years of lost life. [3, 5] Recurrent Hospitalization tends to place the healthcare system under pressure, and it is an indicator of poor post-discharge care. There have been attempts to identify predictors and correlates of psychiatric re-hospitalization. Multiple studies have linked the duration of untreated psychosis, single status, and male gender to a poor prognosis in schizophrenia. [2, 6, 8] Moreover, non-adherence to medication, substance abuse, and psychosocial stressors were frequently cited as clinical triggers of relapse. [2, 9]

Although there was no agreement on a clear definition of engagement and disengagement, remaining successfully engaged with the service is an essential component of psychosis treatment. Individuals with a FEP have a high rate of disengagement, which can reach up to 30%. [10]

The present study aimed to retrospectively examine the factors that were correlated with poor prognostic outcomes of psychotic illnesses (re-hospitalization, number of hospital admissions, and length of hospitalization), in addition to the factors linked to service dis-engagement in Abu Dhabi, the capital city of the United Arab Emirates (UAE).

The Emirate of Abu Dhabi has a population of 2.8 million people. Emirati citizens account for 20% of the population, with the remainder made up of over 200 nationalities, the majority of which are from the Indian subcontinent and the Middle East. [11] In Abu Dhabi, mental health care is provided by two tertiary governmental psychiatric facilities, with an exclusive admitting service, in addition to a few centers in the private sector, which only provide outpatient services. There There are no established outreach teams. The Ambulatory and the primary health care sector have limited contributions to mental health services.

The study was conducted in the largest governmental psychiatric facility in Abu Dhabi, which has 125 beds capacity. The facility receives around 1000 admissions yearly and more than 30,000 outpatient visits. Psychotic disorders contribute to the majority of psychiatric diagnoses in governmental facilities. Data of psychiatric inpatient admissions in Abu Dhabi showed that psychotic disorders and bipolar affective disorder were the most frequent diagnoses. [12, 13] On the other hand, the most common conditions in the psychiatric outpatient clinics were depressive disorders followed by schizophrenia disorder and bipolar affective disorders. [14]

2. Methodology

This is a retrospective cohort study focusing on the first three years of FEP in a group of patients who were treated in the outpatient and inpatient services in the facility. Data was collected through the review of electronic medical records (EMR) after obtaining formal authorization and ethical approval from the Institutional Review Board [IRB] in the hospital. *Inclusion criteria were:* (a) First hospital encounter with a presentation of psychosis between 2012 and 2017; and (b) Age at onset less than 65 years. *Exclusion criteria were*: (a) Neurodevelopmental disorders, (b) Neurocognitive disorders, (c) Alcohol or other substance-induced psychosis, and (d) Lack of follow up information (Patients who did not follow up in the same facility after the first hospital admission/discharge, or after first clinic visit). Given that medical records were converted to electronic records in 2012, patients who had their first hospital encounter before that year were excluded for the accuracy of data collection. Patients who presented with psychosis after 2017 were also excluded because of the COVID-19 pandemic that affected the follow-up patterns in the clinics in the following years. The EMR of each patient was reviewed commencing with their first hospital encounter and for a period of three years only.

Data gathered from patient's Records was independently reviewed by two authors. Patients' gender, education level, occupational status, and marital status were among the non-identifying demographics included in the data. In addition to the primary DSM IV diagnosis, age at onset of psychotic illness, family history of psychosis, and smoking, alcohol, and substance abuse history were considered. In addition, the period of untreated psychosis, the number and the duration of all hospitalizations over the three years, and the number of attended appointment visits were all recorded. The authors defined dis-engagement as interrupted contact with the service for more than three months, and reengagement as reestablishing contact after disengagement.

Data were analyzed using SPSS version 26. Chi-squared or Fisher's exact tests, independent-sample Student's t-tests, or Mann–Whitney U-tests were used as appropriate. Pearson Correlation coefficient and Spearman's Correlation coefficient were used to studying correlational analysis. Type 1 error (alpha=0.05) was used to validate the statistical significance.

3. Results

3.1. Sample Characteristics

We identified 56 patients who met the criteria for inclusion in the study. The sample consists of 55.4% (N=31) males and 44.6% (N=25) females aged 14 to 56 years, with a mean age of 29.51 years (11.449 SD). 39.3% of the sample were married. The sample was predominantly Arab in origin (80.4%). (Table 1) 42.9% had non-affective psychosis. The most prevalent diagnosis was bipolar affective disorder (41.1%), followed by schizophrenia (37.5%). (Table 2) 16.1% were first treated in the outpatient clinic in contrast to 83.9% were first treated as inpatients (admitted through the emergency department). 75% were referred by family members in their first presentation to the mental health facility, while 10.7% were referred with the help of the authorities (after being reported to be aggressive or acting bizarrely in public). Period of untreated psychosis ranged from days to years, the majority (26.8%) had an untreated period of psychosis of more than a year (Table 3).

***Table 1.** Sample Characteristics.*

Gender	*Male 55.4% (31)*
	Female 44.6% (25)
Marital Status	*Married 39.3% (22)*
	Single 51.8% (29)
	Divorced 7% (4)
	Widow 1.8% (1)
Ethnicity	*Arab 80.4% (45)*
	Asian 10.7% (6)
	African 8.9% (5)
Education	*Postgraduate 7.1% (4)*
	College 19.6% (11)
	High School 50% (28)
	Didn't finish school 5.4% (3)
	Illiterate 3.6% (2)
	Missing information in the chart 14% (8)

Occupation	Professional job 12.5% (7)
	Administrative/Office work 3.6% (2)
	Worker/ labourer 8.9% (5)
	Military/ Police 5.4% (3)
	Student 10.7% (6)
	Unemployed 50% (28)
Smoking and substance use	17.9% (10) smokers
	3.9% (3) alcohol Misuse
	1.8% (1) other drug misuse.
Comorbid Medical conditions	Diabetes mellitus 5.4% (3)
	Epilepsy 5.4% (3)
	Hypertension 1.8% (1)
	Thyroid Disease 1.8% (1)
Documented Family History of Psychotic disorders	23.2% (13)

***Table 2.** DSM-5 Psychiatric Diagnoses.*

Schizophrenia disorder	37.5% (21)
Bipolar disorder	41.1% (23)
Schizoaffective disorder	5.4% (3)
Major Depressive disorder with Psychotic features	10.7% (6)
Delusional disorder	5.4% (3)
Total	56 patients

***Table 3.** Period of untreated Psychosis.*

Less than a week	21.4% (12)
One week to one month	14% (8)
One month to six month	25% (14)
6 month to one year	10.7% (6)
More than a year	26.8 (15%)

3.2. Re-hospitalization and Duration of Hospitalization

In the first three years, the mean number of admissions was 2.25 (SD 1.41) admissions. During the three years, 78.6% of patients were re-hospitalized. The average length of stay during the first hospitalization was 14.54 (SD 11.02) days. During the three years, the mean duration of hospitalization was 34.85 days (SD 25.580).

Re-hospitalization was significantly correlated with having a diagnosis of bipolar affective disorder or schizphrenia (vs having other diagnoses) ($p < 0.001$). Males had a significantly higher rate of re-hospitalization ($P = 0.047$). Single patients had significantly higher rates of re-hospitalization and number of hospital admissions ($p < 0.001$). The widowed spent significantly more time in the hospital ($p < 0.001$). There was no link between re-hospitalization or length of stay and untreated psychosis, having a family history of psychosis, age at onset, or having a history of substance abuse. Surprisingly, the number of clinic visits during the first year had no significant correlation with re-hospitalization. (Table 4)

Based on treating psychiatrists' documentation; 83.9% of patients were reported to be free of psychotic symptoms at the end of the three-year follow-up period, 10.7% had residual psychotic symptoms, and 5.4% had negative symptoms and cognitive decline.

3.3. Engagement and Disengagement

In the first year after presenting with psychosis, the average number of clinic visits was 7.6 visits (SD 6.7).

During the three years; 64.8% have missed one or more appointments, while 35.2% have never missed an appointment. 31.5% had reengaged with the service within a year of dis-engagement, 15.8% after a year of dis-engagement, 3.5% after two years, and 12.02% had never reengaged.

Single patients were significantly more likely than another marital status to missing clinic appointments ($P < 0.01$). On the other hand, single patients had a higher re-engagement rate after dis-engagement ($P = 0.038$) either through outpatient services or re-hospitalization. Non-smokers had a significant re-engagement rate after disengagement ($P = 0.008$). Neither the level of education nor the psychiatric diagnoses were found to be correlated significantly with disengagement or re-engagement.

***Table 4.** Factors correlated with re-hospitalization, number of admissions, length of hospitalization, disengagement and re-engagement, p-value (Pearson correlation r).*

Factors correlated with re-hospitalization	
diagnosis of bipolar affective disorder or schizophrenia	*p<0.001 (r 0.041)*
Single status	*p<0.001 (r 0.041)*
Male gender	*p=0.047 (r 0.275)*
Factors correlated with number of admissions	
Male gender	p<0.001 (r 0.04101)
Factors correlated with length of hospitalization	
Widow status	p<0.001 (r 0.041)
Factors correlated with disengagement	
Single status	p<0.001 (r 0.041)
Factors correlated with re-engagement	
Single status	*p=0.038 (r 0.2808)*
Non-smoking	*p=0.008 (r 0.349)*

4. Discussion

To the best of our knowledge, this is the first study in the UAE that investigated the re-hospitalization and disengagement patterns and predictors, in patients presenting with FEP.

Previous studies have repeatedly shown that male gender and single status were associated with poor prognosis and re-hospitalization in the early course of psychotic illness. [7, 6, 15] Our study revealed the same results.

We did not find a significant correlation between employment status or educational attainment with re-hospitalization. The results of literature reviews have been mixed; Some studies have suggested a link between re-hospitalization and unemployment. [16]

Meta-analysis of risk factors of relapse confirmed that illicit substance use was consistently associated with relapse and re-hospitalization. [18] However, we found no correlation between illicit substance use and re-hospitalization, which could be explained by the low rate of illicit substance use in our sample (5.7%) and the fact that we excluded patients presenting with substance-induced psychosis.

Our study showed a significant correlation between diagnoses of bipolar affective disorder and schizophrenia

with re-hospitalization compared to delusional disorder and depressive disorder with psychotic features. The same was replicated by other studies that confirmed that a diagnosis of schizophrenia spectrum disorder or affective psychotic disorder were significant predictors of relapse (vs no relapse). [2]

In terms of service disengagement, various studies have concluded that the rate of service disengagement in the first years of psychosis is high, which is consistent with our findings although our disengagement rate was worse (23% and 56% in Australia compared to 65% in Abu Dhabi). Moreover, rates of re-engagement were also higher in countries with well-established early intervention programs for psychosis [18, 19] Furthermore, we found that the longer the time our patients remained disengaged, the lower the chance of subsequent re-engagement (re-engagement rate was double during the first year of disengagement vs the second year).

The only significant predictor of service dis-engagement in our study is single status. On the other hand, many studies have found that unemployment, a lack of family support, a history of cannabis misuse or other substance use disorders, and the duration of untreated psychosis were significant predictors of disengagement. [18, 19, 10] Though previous research has found no significant predictors of re-engagement [18], we found that single status again and non-smoking are predictors of re-engagement after disengagement. Nevertheless, the re-engagement in our study was defined as having a new encounter with the facility after dis-engagement, either through outpatient visits or another hospital admission, the high re-engagement rate correlated with single patients could be explained by the high rate of re-hospitalization linked to the same group.

5. Limitations

Retrospective studies have several limitations. Some information is bound to be missing because they rely on a review of charts that were not designed to collect data for research in the first place. The sample size is small, which we believe is due to stringent exclusion criteria, which included patients who did not follow up after discharge and those whose psychosis could be linked to drug use. The facility does not have a structured early intervention program for patients with FEP; hence, those patients can choose to follow up with another facility, probably in the private sector, or not to follow up at all. According to our observations, a significant number of patients, particularly workers/laborers, were repatriated to their home country by their employer following a psychotic episode affecting the sample size.

6. Conclusion

In conclusion, we observed that during the first three years of psychosis, more than three-quarters of patients with FEP were re-hospitalized. Furthermore, the rate of disengagement was high, and some patients had never returned.

Unmodifiable factors such as gender, marital status, and diagnosis type were found to be correlated with re-hospitalization and disengagement. We believe that this study aided and abetted the identification of gaps and needs in mental health services in the UAE. The findings of this study could be used to develop future services, such as dedicated assertive intervention programs for patients who are experiencing their first episode of psychosis, to improve treatment outcomes.

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