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ORIGINAL ARTICLE:

A 10-YEAR STUDY OF LENGTH OF STAY OF PSYCHIATRIC ADMISSIONS IN A TERTIARY CARE HOSPITAL IN RAWALPINDI

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ABSTRACT

OBJECTIVE

To measure the frequency of demographic, diagnostic variables and Length of Stay (LOS) in an inpatient psychiatric facility

DESIGN

Retrospective chart review

PLACE AND DURATION OF STUDY

The medical records of all admissions in Benazir Bhutto Hospital Rawalpindi spanning the period from January 2007 to December 2016 were reviewed.

METHOD

Length of Stay (LOS) of patients admitted at the Institute of Psychiatry, Benazir Bhutto Hospital were noted. LOS greater than 10 days was considered as a cut-off point for lengthier stay.

RESULTS

In this study involving 3,975 psychiatric inpatients, nearly 70% of the admissions were female, with depressive disorder being the most prevalent diagnosis. Over the decade, there was a notable reduction in the average length of hospital stay, decreasing from 13 to 9 days. A significant proportion (18.2%) of patients left against medical advice, with a higher percentage among females (19.3%) compared to males (15.5%). Patients were categorized into five age groups, and the highest admissions occurred among those aged 16 to 30 years (52.3%). The data also revealed fluctuations in the mean length of hospital stay over the years, ultimately averaging less than two weeks. Psychiatric diagnoses included a range of disorders, with depressive illness, schizophrenia, and bipolar affective disorder being the most common, while certain disorders like anorexia nervosa were less frequently encountered.

CONCLUSION

Over the past decade, there has been a significant reduction in the average length of hospital stays for psychiatric patients. This highlights the need for further research to improve psychiatric care in resource-limited regions.

KEYWORDS

Pakistan, psychiatric inpatients, length of stay, hospitalization trends, psychiatric diagnoses, underdeveloped regions.

INTRODUCTION

Mental health is an essential component of any comprehensive healthcare plan. In Pakistan, a country facing myriad of challenges in its healthcare system, the provision of psychiatric care faces significant inadequacies. Among the critical indicators of this deficit is the alarmingly low number of psychiatric beds per capita, of approximately 6.9 ratio of psychiatric inpatient beds to 10,000 population.[1] In countries like Pakistan which fall under Lower and Middle Income, there is dearth of mental health

annual budget, with Pakistan spending about 0.4 percent of the overall health budget on its mental health.[1]

In lower-middle-income countries like Pakistan, the dynamics of length of stay at psychiatric hospitals are influenced by several factors, including limited mental health infrastructure, societal stigma, and economic constraints. Patients often face prolonged admissions due to inadequate outpatient support, lack of community-based services, and insufficient follow-up care.[2, 3] Additionally, financial barriers and family burdens can delay discharge, exacerbating overcrowding and straining already limited resources.[4,5] These challenges highlight the urgent need for systemic improvements in mental health care and societal attitudes to ensure timely and effective treatment for patients.

The lack of comprehensive data on psychiatric admissions and factors affecting prolonged hospitalizations in Pakistan makes it difficult to effectively address mental health needs. One of the studies done in Canada showed mean length of stay for psychiatric in-patients to be as high as ninety-six days and for general hospital in patients to be around twenty days, whereas it was seen to be eighteen in Italy and fifty-five in Belgium.[6,7] The state of existing mental health services in low-income countries has been characterized as inadequate, inequitable and inefficient.[8] Studies from Ethiopia showed chronic mental health conditions such as Schizophrenia, Bipolar Disorder to be associated with longer hospital stays.[9] The need for current research into the Length of Stay (LOS) in psychiatric facilities is particularly pressing, especially in countries classified as underdeveloped, where mental health often remains marginalized within the broader healthcare landscape. One of the studies conducted in Pakistan showed that the increasing healthcare cost resulted in economic burden with higher length of hospital stays. [10] While the average hospital stay in most countries is less than 40 days, there is a significant difference between low-, middle-, and high-income countries due to resource availability. [11]

The need for current research into the Length of Stay (LOS) in psychiatric facilities is particularly pressing. Understanding the dynamics of LOS in psychiatric care is crucial for optimizing the allocation of limited resources and enhancing the quality of mental health services. [8] This study aimed to investigate the length of stay (LOS) related to the category of diagnosis in order to better understand psychiatric care resource use in tertiary care facilities.

Objective:

To measure the frequency of demographic, diagnostic variables and Length of Stay (LOS) in an inpatient psychiatric facility

METHOD

A ten-year retrospective chart review of patients admitted to the psychiatric facility of Rawalpindi Medical University, Benazir Bhutto Hospital Rawalpindi was conducted. The medical records of all admissions

spanning the period from January 2007 to December 2016 were reviewed. Length of Stay (LOS) greater than 10 days was considered as a cut-off point for lengthier stay. Consecutive Sampling Technique was used for the study sample. The study included patient data from all age groups.

Data Collection Procedure

The study commenced after getting approval from Ethical Review Board. We analyzed the records from Inpatient data entry registers starting from 2007-2016. This data was entered in specially designed Google form. Age, gender, diagnosis, length of stay (LOS), Outcome of stay were entered in the form online. Names and detailed address were not included in analysis to keep confidentiality.

Data Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) v 26. For continuous variables like Length of Stay (LOS) in days we calculated using mean and standard deviation, while frequency and percentage were calculated for categorical variables such as age groups, gender, outcome of stay and psychiatric diagnosis.

RESULTS

A sample of n=3975 patients was collected through records of inpatient data registers, out of these 1178 (29.6%) were males and 2780 (69.9%) were females. Our study showed that a vast majority, comprising almost 70%, was of female patients admitted over a span of ten years and Depressive Disorder was overall the most frequent diagnosis amongst the admitted patients. Furthermore, the pattern showed that length of hospital stay reduced from 13 days to 9 days over the course of these years.

Patients in our study were divided into five groups according to age. Total patients admitted who were below 15 years were 133 (3.3%) out of which 20 (1.7%) were males and 112 (4.0%) were females. [Table 1, Table 2]

Psychiatric diagnosis in the sample of n=3975 patients included Bipolar Affective disorder, Schizophrenia, Mental and Behavioral disturbances due to Cannabis, Intellectual Disability, Borderline Personality Disorder, Depressive Illness, Other Substance Abuse, Epilepsy, Anorexia Nervosa, Dissociative Disorder and others.

In the sample of n=3975 patients, 1812 patients suffered from depressive illness, 520 had schizophrenia and 638 suffered from bipolar affective disorder. 204 suffered from mental and behavioral disturbances due to cannabis, and 86 patients were admitted who were dependent on drugs other than cannabis. 292 patients had a diagnosis of dissociative disorder and 52 had a diagnosis of epilepsy. 102 patients were having the diagnosis of borderline personality disorder and only 3 cases of anorexia nervosa were admitted over a span of ten years. 118 patients had no definitive diagnosis and data was missing for 77 patients. [Table 3, Table 4]

Mean length of hospital stay in days in year 2007 was 13.95, in 2008 it was 12.72% which decreased in 2009 to 11.15 days. In 2010 it came to be 13.59 days and in 2011 it became 11.8 days. In 2012 the mean days of hospital stay reduced to 8.36, in 2013 it was 9.31 and in 2014 the mean LOS was 9.52 days. In 2015 the mean LOS was 9.31 days and in 2016 it again reduced to 6.21 days. So, in the ten-year period of hospital admitted inpatients in psychiatry revealed that the LOS was less than two weeks. [Table 5]

Table 1

Frequency of Age Groups with Gender

Age Categories (n=3975)				
	Male	**Female**	**Frequency**	**Sum with Missing/Other**
up to 15 years	20 (1.7%)	112 (4.0%)	132 (3.3%)	133
16 to 30 years	620 (52.6%)	1449 (52.1%)	2069 (52.3%)	2077
31 to 45 years	354 (30.1%)	783 (28.2%)	1137 (28.7%)	1141
46 to 60 years	140 (11.9%)	342 (12.3%)	482 (12.2%)	483
61 and above	40 (3.4%)	77 (2.8%)	117 (2.9%)	117
Missing Data	4 (0.3%)	17 (0.6%)	21 (0.6%)	24
Total	**1178**	**2780**	**3958**	**3975**

Table 2

Frequency of Left Against Medical Advice with Gender and Age Wise

Left Against Medical Advice (LAMA) Total Gender and Age Wise (n=3975)					
	Yes	**No**	**Responses other than Yes/No**	**Total**	**Missing Data**
Gender					
Male	183 (15.5%)	994 (84.4%)	-	1177(99.9%)	01(0.1%)
Female	536(19.3%)	2237(80.5%)	06 (0.2%)	2779 (100%)	01(0%)
Other than M/F	05(37.5%)	09(64.3%)	-	14(100%)	-
Total	724(18.2%)	3243(81.6%)	06(0.2%)	3973(99.9%)	02(0.1%)
Age Groups					
Up to 15 years	33 (24.8%)	99 (74.4%)	-	132 (99.2%)	1 (0.8%)
16 to 30 years	368 (17.7%)	1704 (82%)	05 (0.2%)	2077 (100%)	
31 to 45 years	232 (20.3%)	907 (79.5%)	01 (0.1%)	1140(99.9%)	1 (0.1%)
46 to 60 years	75 (15.5%)	408 (84.5%)	-	483 (100%)	
61 and above	13 (11.1%)	104 (88.9%)	-	117 (100%)	
Missing Age	3 (12.5%)	21 (87.5%)	-	24 (100%)	
Total	724 (18.2%)	3243(81.6%)	06 (0.2%)	3973(99.9%)	2 (0.1%)

Table 3
Diagnosis Based on Gender Categories

Diagnosis Based on Gender Categories (n=3975)				
Diagnosis	**Male**	**Female**	**Others**	**Total**
Depressive Illness	389 (33%)	1417 (51%)	4 (28.6%)	1812 (45.6%)
Bipolar Affective Disorder	198 (16.8%)	438 (15.8%)	2 (14.3%)	638 (16%)
Schizophrenia	199 (16.9%)	321 (11.5%)		520 (13.1%)
Dissociative Disorder	55 (4.7%)	232 (8.3%)	5 (35.7%)	292 (7.3%)
Mental and Behavioral Disturbance Due to Cannabis	96 (8.2%)	108 (3.9%)	-	204 (5.1%)
Borderline Personality Disorder	12 (1%)	90 (3.2%)	-	102 (2.6%)
Other Drug Abuse	74 (6.3%)	12 (0.4%)	-	86 (2.2%)
Intellectual Disability	25 (2.1%)	46 (1.7%)	-	71 (1.8%)
Epilepsy	23 (2%)	29 (1%)	-	52 (1.3%)
Anorexia Nervosa	1 (0.1%)	2 (0.1%)	-	3 (0.1%)
Others	70 (6.0%)	46(1.5%)	1(0.1%)	118(3.1%)
Total	1142 (96.9%)	2741 (98.6%)	13 (92.9%)	3898 (98.1%)
Missing Data	36 (3.1%)	39 (1.4%)	1 (7.1%)	77 (1.9%)

Table 4

Diagnosis Based on Age Categories

Diagnosis Based on Age Categories (n=3975)						
Diagnosis	**up to 15 years**	**16 to 30 years**	**31 to 45 years**	**46 to 60 years**	**61 and above**	**Total**
Depressive Illness	54 (40.6%)	836 (40.3%)	538 (47.2%)	309 (64%)	64 (54.7%)	1812 (45.6%)
Bipolar Affective Disorder	9 (6.8%)	327 (15.8%)	214 (18.8%)	73 (15.2%)	10 (8.6%)	638 (16%)
Schizophrenia	4 (3%)	323 (15.6%)	156 (13.7%)	27 (5.6%)	7 (6%)	520 (13.1%)
Dissociative Disorder	33 (24.8%)	204 (9.8%)	44 (3.9%)	6 (1.2%)	5 (4.3%)	292 (7.3%)
Mental and Behavioral Disturbance due to Cannabis	6 (4.5%)	107 (5.2%)	45 (3.9%)	29 (6.0%)	13 (11.1%)	204 (5.1%)
Borderline Personality Disorder	-	60 (2.9%)	38 (3.3%)	3 (0.6%)	1 (0.9%)	102 (2.6%)
Other Drug Abuse	-	50 (2.4%)	24 (2.1%)	9 (1.9%)	3 (2.6%)	86 (2.2%)
Intellectual Disability	7 (5.3%)	42 (2%)	18 (1.6%)	2 (0.4%)	2 (1.7%)	71 (1.8%)
Epilepsy	8 (6%)	31 (1.5%)	10 (0.9%)	3 (0.6%)	-	52 (1.3%)
Anorexia Nervosa			2 (0.2%)	1 (0.2%)	-	3 (0.1%)
Others	6(4.5%)	59(2.8%)	30(2.6%)	16(3.3%)	8(6.9%)	118(3.1%)
Total	127 (95.5%)	2039 (98.2%)	1118 (98%)	478 (99%)	113 (96.7%)	3898 (98.1%)
Missing Data	6 (4.5%)	38 (1.8%)	23 (2%)	5 (1%)	4 (3.3%)	77 (1.9%)

Table 5
Mean and Standard Deviation of Hospital Stay in Days versus Years

Hospital Stay (Days)	
Year	**Mean [Std. Dev]**
2007	13.95 [10.186]
2008	12.72 [18.677]
2009	11.15 [8.342]
2010	13.59 [10.874]
2011	11.8 [10.887]
2012	8.36 [8.156]
2013	9.31 [8.207]
2014	9.52 [8.988]
2015	9.31 [9.201]
2016	6.21 [7.377]

DISCUSSION

Serious mental illness (SMI), which includes a variety of chronic conditions accounts for about seven percent of the total inpatients' stay, according to statistics from NHS England. [12] The duration of psychiatric hospital stays, known as Length of Stay (LOS), is a multifaceted and critical aspect of mental health care. Several studies from diverse healthcare settings shed light on the various factors associated with LOS and its implications for individuals with serious mental illnesses (SMI). Evidence accounts for chronic mental health conditions having longer length of stay such as bipolar and schizophrenia which is also consistent with our study. [13] Results of an Ethiopian study reveals that the most common discharge diagnoses were schizophrenia and other psychotic disorders (27.6%), and bipolar disorder (23.4%). [9]

As per expectations, depressive illness was the most frequent diagnosis among inpatients (45.6%), since this is also the greatest contributor to DALYs (disability-adjusted life years) in Pakistan. [14] In our sample, females made up the majority of inpatients (69.9%). This is in alignment not only with larger data from Pakistan but also with worldwide observations, that show mental disorders, especially depressive illness, to be more prevalent in females as compared to males. [14]

Over the years many studies prove that there has been gradual decline in total length of stay in psychiatric inpatients, this is also consistent over what we see in our study where the study done over span of a decade showed that average length of stay decreased from 13.9 days in 2007 to 6.21 days in 2016. Yet it is still longer than that for physical illnesses in general wards. [6] One of the systematic reviews from United

States done on inpatient psychiatric stays revealed that chronic mental health conditions such schizophrenia and female gender account for longer LOS. It also showed that discharge against medical advice was considerably associated with shorter LOS which is also consistent with our study where the LOS reduced significantly in patients who Left Against Medical Advice (LAMA). [15]

Deinstitutionalization of mental health care has revolutionized psychiatric care in many Western countries, emphasizing community-based services over long-term institutional admissions. Acute inpatient psychiatric care, which now accounts for a small part of total mental health care in the western world, is primarily concerned with stabilization, safety, and speedy discharge which results in lesser economic burdens. [15, 16] Whereas in LMICs the inpatient psychiatric facilities are still facing significant difficulties in segregation of acute inpatient psychiatric setups from the ones needing longer LOS for stabilized chronic psychiatric patients. In Pakistan there is lack of community based mental health facilities which, situation that is shared with its neighboring country India. LMICs not only lack in community mental health services but also in research to evaluate the reforms and possible way forwards. [17-20]

Understanding the factors influencing Length of Stay (LOS) in psychiatric care is paramount for optimizing mental health services and ensuring effective care delivery for individuals with mental illness. This study's strengths lie in its large sample size and comprehensive ten-year timeframe, providing robust and longitudinal insights. Detailed diagnosis data further enriches understanding of psychiatric conditions. However geographic restriction may affect generalizability. Another limitation is that our study does not look for any possible associations between the different psychiatric diagnoses and LOS. Nevertheless, the study's impacts are significant; it stimulates further research into gender disparities and LOS reduction, informs clinical enhancements, and advocates for improved community-based mental health services, especially in low- and middle-income countries (LMICs).

CONCLUSION

This is the first study from Pakistan which highlights the length of stay (LOS) along with various psychiatric diagnoses in the inpatient psychiatric facility spanning over the duration of ten years. This study indicates a reduction in average hospital stays from 13 to 9 days, with a substantial number of female patients (70%) and a prevalent diagnosis of depressive disorder. Leaving against medical advice was notable, particularly among females. Admissions were highest among those aged 16 to 30. Common diagnoses included depressive illness, schizophrenia, and bipolar affective disorder. These findings highlight the evolving psychiatric care landscape in Pakistan, necessitating further research to optimize services in underdeveloped regions and address the multifactorial nature of length of stay in psychiatric settings.

Conflicts of Interest:
Author(s) declare no conflict of interest

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REFERENCES

1. Mubbashar MH. Development of mental health services in Pakistan. International Psychiatry. 2003 Jul;1(1):11-3.
2. Siddiqi S, Ahmad I, Siddiqi N. Mental health services in Pakistan: challenges and opportunities. East Mediterr Health J. 2016;22(5):346-53.
3. World Health Organization. Mental Health in the Eastern Mediterranean Region: Reaching the Unreached. Cairo: WHO Regional Office for the Eastern Mediterranean; 2019.
4. Patel V, Saxena S, Lund C, Thornicroft G, Baingana F, Bolton P, et al. The Lancet Commission on global mental health and sustainable development. Lancet. 2018;392(10157):1553-98.
5. Abdelhalim A, Zargoush M, Archer N, Roham M. Decoding the persistence of delayed hospital discharge: An in-depth scoping review and insights from two decades. Health Expectations. 2024 Apr;27(2):e14050.
6. Naeem F, Ayub M, Gobbi M, Kingdon D. Improving mental health services in developing countries: Mental health professionals' perspectives from Pakistan. J Psychiatr Pract. 2017;23(4):283-92.
7. Chen S, Collins A, Anderson K, McKenzie K, Kidd S. Patient characteristics, length of stay, and functional improvement for schizophrenia spectrum disorders: a population study of inpatient care in Ontario 2005 to 2015. The Canadian Journal of Psychiatry. 2017 Dec;62(12):854-63.
8. Dimitri G, Giacco D, Bauer M, Bird VJ, Greenberg L, Lasalvia A, Lorant V, Moskalewicz J, Nicaise P, Pfennig A, Ruggeri M. Predictors of length of stay in psychiatric inpatient units: Does their effect vary across countries?. European Psychiatry. 2018 Feb;48(1):6-12.
9. Addisu F, Wondafrash M, Chemali Z, Dejene T, Tesfaye M. Length of stay of psychiatric admissions in a general hospital in Ethiopia: a retrospective study. International journal of mental health systems. 2015 Dec;9(1):1-9.
10. Rathod S, Pinninti N, Irfan M, Gorczynski P, Rathod P, Gega L, Naeem F. Mental health service provision in low-and middle-income countries. Health services insights. 2017 Mar 24;10:1178632917694350.
11. Khan MM. Economic burden of mental illnesses in Pakistan. Journal of Mental Health Policy and Economics. 2016;19(3):155.
12. Jacobs R, Gutacker N, Mason A, Goddard M, Gravelle H, Kendrick T, Gilbody S. Determinants of hospital length of stay for people with serious mental illness in England and implications for payment systems: a regression analysis. BMC Health Services Research. 2015 Jun;15(1):1-6.
13. Carranza Navarro F, Alvarez Villalobos NA, Contreras Munoz AM, Guerrero Medrano AF, Tamayo Rodriguez NS, Saucedo Uribe E. Predictors of the length of stay of psychiatric inpatients: protocol for a systematic review and meta-analysis. Systematic Reviews. 2021 Dec;10:1-6.

14. Alvi MH, Ashraf T, Naz F, Sardar A, Ullah A, Patel A, Kiran T, Gumber A, Husain N. Burden of mental disorders by gender in Pakistan: analysis of Global Burden of Disease Study data for 1990–2019. BJPsych Bulletin. 2023 Sep 29:1-8.
15. Tulloch AD, Fearon P, David AS. Length of stay of general psychiatric inpatients in the United States: systematic review. Administration and Policy in Mental Health and Mental Health Services Research. 2011 May;38:155-68.
16. Shen GC, Snowden LR. Institutionalization of deinstitutionalization: a cross-national analysis of mental health system reform. International journal of mental health systems. 2014 Dec;8(1):1-23.
17. Javed A, Khan MN, Nasar A, Rasheed A. Mental healthcare in Pakistan. Taiwanese Journal of Psychiatry. 2020 Jan 1;34(1):6-14.
18. Hans G, Sharan P. Community-based mental health services in India: Current status and roadmap for the future. Consortium Psychiatricum. 2021;2(3):60-8.
19. Montenegro C, Dominguez MI, Moller JG, Thomas F, Ortiz JU. Moving psychiatric deinstitutionalization forward: A scoping review of barriers and facilitators. Cambridge Prisms: Global Mental Health. 2023 Jan;10:e29.
20. Raja T, Tuomainen H, Madan J, Mistry D, Jain S, Easwaran K, Singh SP. Psychiatric hospital reform in low-and middle-income countries: a systematic review of literature. Social Psychiatry and Psychiatric Epidemiology. 2021 Aug;56:1341-57.

AUTHOR(S) CONTRIBUTION/UNDERTAKING FORM

A 10-Year Study of Length of Stay of Psychiatric Admissions in a Tertiary Care Ho

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