Pattern of Referral of Patients with COVID-19 for Psychiatric Consultation: Experience at a Multidisciplinary Hospital in Karachi, Pakistan

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ABSTRACT

Objective: To determine referral patterns for psychiatric consultations among COVID-19 patients encompassing both the in-patient and Emergency Department of a multidisciplinary hospital in Karachi, Pakistan.

Study Design: A retrospective chart review.

Place and Duration of the Study: The Aga Khan University Hospital, Karachi, Pakistan, from March 2020 to December 2021.

Methodology: The research team collected pertinent information from medical records using a standardised proforma, which encompassed data from physicians' notes, nurses' notes, assessment forms, and discharge summaries. The data were analysed using descriptive and inferential statistics.

Results: This study examined 233 psychiatric referrals, with 67% male patients (n = 156) and 57.1% (n = 133) aged above 60 years. The primary psychiatric diagnosis was delirium (47.1%, n = 105), followed by adjustment disorders (10.8%, n = 27) and mood disorders (11.7%, n = 25). The main symptoms leading to consultation were agitation/confusion (45%, n = 106) and psychotropic adjustment (18%, n = 41). Clinical outcomes, including mortality, were associated with agitation/confusion (p = 0.001), delirium (p = 0.001), older age (p = 0.003), and longer length of stay (p = 0.001). Patients aged 61 years and above exhibited frequent agitation/confusion (p = 0.002) and delirium (p = 0.001). Longer stays correlated with agitation/confusion (p = 0.022), and a one-month hospital stay showed an association with delirium (p = 0.050).

Conclusion: This study highlights the crucial role of consultation-liaison psychiatric services in addressing the psychological issues in COVID-19 patients. The significance of delirium and its high mortality risk underscores the need for focused research and integration of mental health care into pandemic responses for comprehensive patient care.

Key Words: *Referrals, Psychiatric consultations, Hospitalised patients, COVID-19, Pakistan, Consultation-liaison services.*

How to cite this article: Noorullah A, Ahmed B, Hafiz MY, Pirani S, Khan M. Pattern of Referral of Patients with COVID-19 for Psychiatric Consultation: Experience at a Multidisciplinary Hospital in Karachi, Pakistan. *J Coll Physicians Surg Pak* 2025; **35(01)**:111-115.

INTRODUCTION

The global count of confirmed COVID-19 cases had surged to 774,771,942, with 7,035,337 reported deaths as of 25 February 2024.[1] In Pakistan, COVID-19 emerged on 26 February 2020,[2] leading to 1,581,936 confirmed cases and 30,664 fatalities by 13 March 2024.[3] Previous health crises such as severe acute respiratory syndrome (SARS), influenza, middle east respiratory syndrome (MERS), and Ebola have underscored the profound psychological impact of infectious diseases.[4] International studies have revealed prevalent psychological symptoms among hospitalised COVID-19 patients, notably anxiety (34.72%) and depression (28.47%).[5]

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Received: February 10, 2024; Revised: July 20, 2024; Accepted: November 08, 2024
DOI: https://doi.org/10.29271/jcpsp.2025.01.111

Despite these insights, research on the mental health impact of COVID-19 remains limited in Pakistan. One study observed heightened levels of insomnia, depression, and anxiety among stable COVID-19 patients.[6] While another focused only on those in the recovery phase, excluding acute psychological issues during the acute phase.[7] Additionally, there is a significant lack of scientific literature on consultation-liaison (CL), psychiatric services, particularly concerning COVID-19 patients facing psychological challenges in Pakistan. This study examines the referral patterns for CL psychiatric services among COVID-19 hospitalised patients at a private sector hospital in Karachi, Pakistan, a primary hub for COVID-19 cases. The objective is to analyse these referral patterns in both inpatient and emergency department settings. Given the existing gap, understanding these patterns is crucial for improving psychiatric care and support during the pandemic.

METHODOLOGY

This retrospective descriptive chart review was conducted at the Aga Khan University Hospital (AKUH) in Karachi, Pakistan, with ethical exemption from the Ethics Review Board (ERC#

-2021-6355-18557). The study included COVID-19 patients diagnosed clinically, encompassing symptomatic cases, asymptomatic positives, those with antibodies, and individuals with post-COVID-19 sequelae. Psychiatric referrals from the emergency department or wards were considered from March 2020 to December 2021, with only the initial consultation for each case included. Patients without a COVID-19 diagnosis and non-initial consultations for patients with COVID-19 during the specified period were excluded from the study. A convenience sampling approach was utilised by including all consultations that met the inclusion criteria within the defined period.

The authors conducted a descriptive analysis to examine the frequency and percentages of the collected data. This analysis allowed the authors to understand the trends in presenting complaints and demographic characteristics of patients. Additionally, the authors calculated p-values by testing Chi-square through Statistical Package for Social Sciences (SPSS) to assess the association between various variables, including length of stay, age, and clinical outcomes. Furthermore, odds ratios (OR) were calculated to analyse the relationships of agitation / confusion and delirium with specific variables.

RESULTS

From March 2020 to December 2021, 233 psychiatric referrals for COVID-19 patients were identified, constituting 4.42% of the total 5,267 COVID-19-positive admissions within the hospital. The overall psychiatry referral rate during this period was low at 8.21% of the total 2,838 index psychiatry consultations. Table I shows the sociodemographic and clinical details of the patients.

Figure 1 illustrates the reasons for psychiatric consultations and Table II encompasses the psychiatric diagnoses.

Post-referral, 123 patients were advised follow-up in outpatient clinics; only 23 complied, indicating a potentially low follow-up rate, with data for the outcome missing.

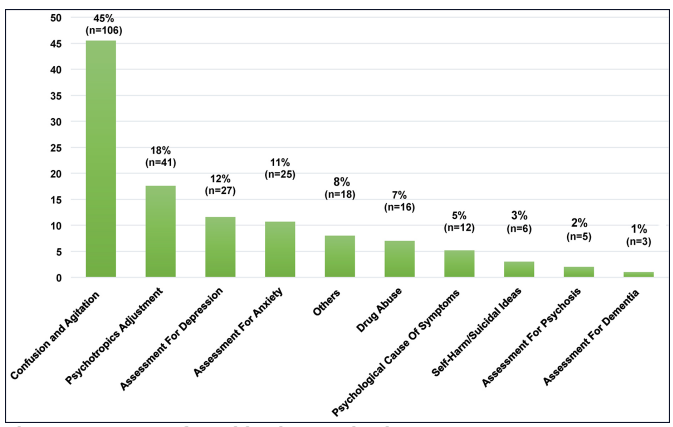

Figure 1: Reasons of psychiatric consultations.

Others: Not specified in well-defined electronic categories such as Insomnia, management difficulties, refusal to consume food, liquids, or medications, irrelevant speech, flight of ideas, decreased appetite, assessment for competency, assessment for catatonia, intermittent slurring of speech, psychotherapy.

Table III indicates significant p-values (association of clinical outcome, age, and length of stay with clinicodemographic characteristics of psychiatric consults).

Table IV gives odd ratios of agitation/confusion and delirium with different variables.

Expired patients had higher odds ratio of receiving consultations for confusion and agitation (OR 6.623) compared to discharged patients. Patients aged 61 and above were nearly four times more likely to experience agitation and confusion compared to those aged 8-18 years (OR 3.763). Longer hospital stays, especially 31 days or more, were associated with increased odds of these symptoms (OR 4.567). Delirium significantly increased the odds of mortality (OR 3.60), and longer stays, particularly 31 days or more, were linked to higher odds of delirium, with a trend towards increased odds for stays of 15-30 days.

DISCUSSION

This study is one of the few focusing on CL psychiatry and COVID-19 consultations in Pakistan, emphasising the need to develop this sub-speciality in low middle-income countries (LMICs). The CL psychiatric services model at AKUH offers an adaptable framework for similar healthcare systems. Agitation and confusion were the primary reasons for psychiatric referrals, aligning with delirium, the most common diagnosis. This finding is consistent with another CL study from the same centre conducted during non-pandemic days, where these were also the most common reasons for referrals and diagnoses.[8] A Saudi Arabian study ranked agitation third for psychiatric consultations, and differences in reporting, such as in the present study consolidation of agitation and confusion, may explain discrepancies.[9] These symptoms often hinder primary illness management, highlighting the need for early psychiatric intervention. Psychotropic adjustment, the second most frequent reason for consultation, underscores the importance of optimising medication for the hospitalised patients. This includes careful consideration of medical conditions, comorbidities, and potential medicine interactions. Most consultations originated from in-patient services and were urgent, emphasising the need for timely psychiatric intervention. Electronic records show how consult questions and urgency are documented, providing opportunities to refine consult questions and ensure appropriate urgency assessments.

Delirium was the most common diagnosis, followed by mood disorders. Its association with COVID-19 comorbidity aligns with existing literature.[10] Delirium was linked to extended hospital stays and mortality in the present study consistent with previous research on the subject.[11] Adjustment disorders included COVID-19-related anxiety and depressive symptoms triggered by stressors such as illness adaptation, hospitalisation, and grief. Depression findings are consistent with literature, such as a study from Peshawar reporting high anxiety and depression rates among COVID-19 patients.[12] Nineteen patients did not receive a psychiatric diagnosis. This may be because the consulting team associates a single symptom with a psychiatric disorder that does not necessarily warrant a diagnosis.

Table I: Patients' sociodemographic and clinical details (n = 233).

Variables	Frequency	Percentage
Age (years)		
8-18	4	1.7
19-60	96	41.2
61 and above	133	57.1
Gender		
Female	77	33.0
Male	156	67.0
Severity of COIVD-19 illness		
Non-severe	16	6.9
Mild	28	12
Moderate	25	10.8
Severe	83	35.6
Critical	67	28.8
Post-COVID sequelae	14	6.0
Laboratory investigations confirming COVID-19		
*PCR Test	176	75.4
Rapid antigen test	50	21.4
COVID-antibodies positive	7	2.9
Presenting symptoms: COVID-19-related *vs.* Non-COVID-19-related		
Symptomatic patients	203	87.1
Asymptomatic patients	30	12.9
Length of stay in hospital (days)		
1-14	169	72.5
15-30	52	22.3
31 and above	12	5.1
Clinical outcome of patients		
Discharged	168	72
Expired	37	15
**LAMA	28	12
Types of consultations		
Urgent	170	73
Routine	63	27
Sources of consultations		
Emergency department	13	5.6
Ward	220	94.4

**PCR: Polymerase chain reaction. **LAMA: Leave against medical advice.*

Table II: Psychiatric diagnoses.

Psychiatric diagnoses	Frequency	Percentage
Delirium	105	47.1
Adjustment disorders	27	10.8
Mood disorders	25	11.2
Depressive disorder	16	7.2
Mood disorder unspecified	05	2.2
*Bipolar or related disorders	04	1.8
Anxiety or fear related disorders	21	9.3
Anxiety or fear related disorders, unspecified	11	4.9
Mixed depressive and anxiety disorder	7	3.1
*Generalised anxiety disorder	2	0.9
Panic disorder	1	0.4
No psychiatric diagnosis	19	8.5
*Mental and behavioural disorder due to substance dependence	18	8.1
*Schizophrenia	16	7.2
Others	8	3.6
*Dementia	2	0.9

**Indicates disorders not induced by COVID-19 but specifies pre-COVID psychiatric disorders requiring assessment and optimisation of condition during hospitalisation.*

Early referrals for agitation, confusion, and suspected delirium are crucial, especially for elderly patients and those with prolonged hospitalisations during the pandemic. The low referral rate compared to total admissions indicates a need for a proactive CL referrals model and increased awareness among non-mental health professionals. Data on referrals to psychiatry clinics *vs.* attendance at outpatient psychiatry are missing. Out of what was available, the present study reported low attendance, which could be attributed to financial and stigma barriers.[13] It highlights the need for better psycho-education to promote appointment adherence and provide financial assistance to patients who cannot pay out of pocket. A study from Pakistan also emphasises the impacted mental health of patients in the recovery phase of COVID-19, which signifies the importance of improved follow-up compliance for these recovering patients.[7] Limitations of the present study include missing data on family members' COVID-19 status, premorbid personality traits, and coping styles, alongside the retrospective design of the study. As a retrospective chart review, this study did not assess outcomes against predefined standards, which may limit the applicability of findings to specific benchmarks.

Table III: Association of clinical outcomes, age, and length of stay with clinicodemographic characteristics of psychiatric consults.

Variables	Clinical outcome				
	Discharged (n = 168)	Expired (n = 37)	LAMA (n = 28)	Total (n = 233)	p-value
Agitation and confusion					0.001
Absent	102 (60.7%)	7 (18.9%)	18 (64.3%)	127 (54.5%)	
Present	66 (39.2%)	30 (81.1%)	10 (35.7%)	106 (45.5%)	
Delirium					0.001
Absent	96 (57.1%)	10 (27.0%)	22 (78.6%)	128 (54.9%)	
Present	72 (42.8%)	27 (73.0%)	6 (21.4%)	105 (45.1%)	
Age (years)					0.003
8-18	3 (1.7%)	0 (0.0%)	1 (3.57)	4 (1.7%)	
19-60	77 (45.8%)	5 (13.5%)	14 (50%)	96 (41.2%)	
61 and above	88 (52.3%)	32 (86.4%)	13 (46.4%)	133 (57.08%)	
Length of stay (in days)					0.001
1-14	128 (76.1%)	16 (43.2%)	25 (89.2%)	169 (72.53%)	
15-30	35 (20.8%)	14 (37.83%)	3 (10.7%)	52 (22.31%)	
31 and above	5 (2.97%)	7 (18.9%)	0 (.0%)	12 (5.14%)	
		Age (years)			
	8-18 (n = 4)	19-60 (n = 96)	61 and above (n = 133)	Total (n = 233)	
Agitation and confusion					0.002
Absent	3 (75.0%)	65 (67.7%)	59 (44.4%)	127 (54.5%)	
Present	1 (25.0%)	31 (32.3%)	74 (55.6%)	106 (45.5%)	
Delirium					0.001
Absent	4 (100%)	68 (70.8%)	56 (41.2%)	128 (54.9%)	
Present	0 (.0%)	28 (29.2%)	77 (57.9%)	105 (45.1%)	
		Length of stay (days)			
	1-14 (n = 169)	15-30 (n = 52)	31-and above (n = 12)	Total (n = 233)	
Agitation and confusion					0.022
Absent	102 (60.4%)	22 (42.3%)	3 (25%)	127 (54.5%)	
Present	67 (39.6%)	30 (57.7%)	9 (75%)	106 (45.5%)	
Delirium					0.050
Absent	100 (59.2%)	24 (46.2%)	4 (33.3%)	128 (54.9%)	
Present	69 (40.8%)	28 (53.8%)	8 (66.6%)	105 (45.1%)	

Table IV: Odds ratio of agitation, confusion, and delirium with variables.

	Absent	Present	Odds ratio (95% CI)	p-value
	Agitation and confusion (reason of consult)			
Clinical outcome of patients				<0.001
Discharge	102	66	1	
Expired	7	30	6.623 [2.750-15.953]	
LAMA	18	10	0.859 [0.373-1.974]	
Age (years)				<0.001
8-18	3	1	1	
19-60	65	31	1.431 [0.143-14.317]	
61 and above	59	74	3.763 [0.381-37.115]	
Length of stay (days)				<0.008
1-14	102	67	1	
15-30	22	30	2.076 [1.105-3.900]	
31 and above	3	9	4.567 [1.193-17.486]	
	Delirium (diagnosis made by C-L psychiatry team)			
Clinical outcome of patients				<0.001
Discharge	96	72	1	
Expired	10	27	3.600 [1.638-7.911]	
LAMA	22	6	0.364 [0.140-0.943]	
Length of stay (days)				<0.078
1-14	100	69	1	
15-30	24	28	1.691 [0.905-3.161]	
31 and above	4	8	2.899 [0.840-10.004]	

Follow-up studies are essential to understand long-term psychiatric morbidity in patients receiving acute-stage psychiatric consultations for *SARS-CoV-2* infection. Survivors of critical illnesses frequently exhibit elevated long-term rates of depression,[14] anxiety,[15] and post-traumatic stress.[16] Exploring enduring impacts on individuals with pre-existing psychological issues compared to those without such issues could offer insightful findings. Training mental health professionals to improve documentation and non-mental health professionals to enhance referral rates and urgency assessments is vital. Future research should consider prospective studies with established standards (benchmarks) and include control groups to better evaluate outcomes and improve CL psychiatric practices.

CONCLUSION

This study underscores the critical role of CL psychiatric services in managing psychological issues in COVID-19 patients. Delirium's significance and high mortality risk warrant focused research, and integrating mental health care into pandemic responses is imperative for comprehensive patient care.

ETHICAL APPROVAL:
The ethical exemption was obtained from the Ethics Review Committee of the Aga Khan University Hospital, Karachi, Pakistan (Reference #2021-6355-18557).

PATIENTS' CONSENT:
All patients provided written informed consent.

COMPETING INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
AN: Conception, acquisition, drafting, analysis, and critical revision of the manuscript for important intellectual content.
BA: Data collection and data analysis.
MYH: Conception, design, and data collection.
SP: Literature search and editing of the draft for the final submission.
MK: Conception, intellectual input, and supervision of the study.
All authors approved the final version of the manuscript to be published.

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