

ORIGINAL ARTICLE:

Characteristics and patterns of psychiatric illness among children and adolescents at a tertiary care hospital in Karachi Pakistan**Fawad Suleman¹, Samiya Iqbal², Zainab Sher³, Liaqat Ali Halo⁴, Shahina Pirani⁵**^{1,2,3}Department of Psychiatry, Aga Khan University, Karachi, Pakistan⁴National Institute of Child Health (NICH), Karachi, Pakistan⁵Aga Khan University, Karachi, PakistanCORRESPONDENCE: **DR. FAWAD SULEMAN**

E.mail:fawad.suleman@aku.edu

Submitted: January 04, 2024

Accepted: March 13, 2024

ABSTRACT**Objective**

To assess the patterns of psychiatric illness among children and adolescents presenting to psychiatric clinic of a public sector teaching hospital in Karachi, Pakistan.

Study Design

A cross sectional study

Place and Duration of the study

The study was conducted at the Child and Adolescent Psychiatry outpatient clinic of the National Institute of Child Health (NICH) in Karachi, during February 2019 to October 2019.

Method

Using consecutive, non-probability sampling, all male and female participants, age less than 18 years were recruited from the study setting. Data collection was done using a pre-designed semi-structured proforma. **The data was analyzed using SPSS version 22**

Results

A total of 250 pediatric patients who fulfilled the inclusion criteria were enrolled in this study. These included 161 (64.4%) males and 89 (35.6%) females. Mean age was 9.55 ± 3.374 years. 31 (12.4%) patients reported directly to the psychiatry clinic while 160 (64%) patients were referred from pediatric medicine clinics. The remaining 59 (23.6%) patients were referred from adult psychiatry clinics. 126 (50.4%) were diagnosed to have stress and related disorders, 85 (34%) patients were diagnosed with neurodevelopmental disorders. About 5 (2%) patients were diagnosed with psychotic and mood disorders, 34 (13.6%) were diagnosed with other nonspecific disorders.

Conclusion

The study reveals a male predominance among children and adolescents presenting with psychiatric symptoms at a public sector hospital, with a high referral rate from pediatricians. The diverse mental health issues include stress, neurodevelopmental, and other diagnoses, highlighting the need for deeper investigation and targeted clinical attention.

Keywords

Children and Adolescents, psychiatric disorders, hospital, Pakistan

INTRODUCTION

Mental health problems among children and adolescents encompass a wide variety of neurodevelopmental, emotional and behavioral disorders which have serious implications for their physical and psychological well-being. These affect their quality of life poorly and limit efficient functioning at home, in school and in the communities.¹ Moreover, these childhood disorders negatively impact the sensitive period of development and cause a significant disruption in acquisition of their milestones. These include but are not limited to the ability to manage thoughts and emotions, the ability to learn and to build social relationships.²

Globally 10-20% of children and adolescents experience mental health disorders; half of all mental illnesses begin by the age of 14 and three-quarters by mid-20s. Suicide is the fourth leading cause of death among adolescents and 50% of adult mental health disorders have their origin in childhood.³ There has been a recent surge in mental health issues in children and adolescents, especially in the wake of the coronavirus pandemic.^{4,5} Early and accurate diagnosis of psychiatric conditions in children and adolescents is a critical step that can limit the extent of disability. By initiating targeted interventions promptly upon diagnosis, the impact of these conditions can be mitigated, significantly improving the prospects for recovery and enhanced quality of life.⁶

Pakistan, a low- and middle-income country, has a relatively young population with approximately 50% of population under the age of 25 years.⁷ In Pakistan, the confluence of poverty, political instability, violence and frequent natural disasters creates a challenging environment for children and adolescents' mental health which is further compounded by the prevalence of bullying in schools, easy accessibility of drugs, and inadequate media portrayals of mental illness. Moreover, parenting practices are largely traditional and can be punitive. These factors collectively create a fertile ground for the proliferation of psychiatric disorders among children and adolescents, underscoring the urgent need for comprehensive mental health strategies and interventions tailored to this context.⁸ Yet there is a dearth of literature about this in Pakistan.⁹

Comprehending the patterns and characteristics of psychiatric illnesses among children and adolescents in tertiary care settings within Pakistan is of paramount importance for several reasons. Firstly, this understanding is pivotal for elucidating the etiology of these conditions. Moreover, this knowledge is instrumental in informing targeted interventions at the community level, ensuring that they are tailored to meet the specific needs of the population. In addition, it could play a critical role in mobilizing policymakers towards the allocation of appropriate resources. It could also serve as a foundation for sensitizing the public about mental health issues, which is essential for destigmatizing psychiatric disorders. Ultimately, this can contribute significantly to enhancing the quality of care available for mental illnesses, thereby improving the overall well-being of this vulnerable demographic. Therefore, we aimed to assess the patterns of psychiatric

illness among children and adolescents presenting at psychiatric clinic of a public sector teaching hospital of Karachi Pakistan.

METHOD

A cross-sectional study was conducted at the Child and Adolescent Psychiatry out-patient clinic of National Institute of Child Health (NICH) in Karachi, Pakistan. It is one of the oldest and largest public sector teaching hospitals in Karachi that provides services in multiple specialties such as pediatrics neurology, gastroenterology, infectious disease, general surgery, medicine, accident and emergency etc.¹⁰

It will be helpful to have some more information about the child Psychiatry clinic, when was started, team working there, challenges faced in establishing etc., (added below)

When I started the Child & Adolescent Psychiatry Clinic at the large children's hospital, I faced few problems at first. It began in February 2019, and my fellow pediatricians were unsure about supporting psychiatric services at the hospital. At the beginning, there weren't many patients being referred to me.

To fix this, I started teaching about psychiatric cases during our morning meetings. This helped my colleagues understand better, and slowly more patients started coming to us.

But besides that, we had other problems too. We didn't have a proper room for our clinic, there wasn't a good waiting area, and psychiatric help wasn't available all the time in the emergency department. To solve these problems, I worked with the hospital's admin team. We finally established the clinic at a separate OPD building with appropriate waiting area. This made it easier for patients to get the help they needed at the clinic.

I also worked closely with the general adult psychiatry department, holding didactics on child & adolescent psychiatry every Saturday. This helped more kids get referred to child clinic, and later two of general psychiatry residents were assigned to join the clinic for their child psychiatry rotation.

All these efforts improved collaboration between the pediatric and adult psychiatry teams and my team, aiding residents in gaining better knowledge about treating children with mental health problems.

The inclusion criteria of the study participants included all children aged 18 years or less, male or female, presented at Psychiatric clinic of study setting between February 2019 to October 2019. The exclusion criteria included all those participants who had underlying organic diseases, were not willing to participate or refused to provide consent.

Before commencing the study, permission was sought from the study setting and ethical approval was obtained from Institutional Ethical Review Board of National Institute of Child Health.

PARTICIPANTS RECRUITMENT AND DATA COLLECTION

The study participants were recruited from the psychiatric clinic using consecutive, non-probability sampling. All those parents/guardians who were willing to participate were provided with a brief description of the study and written informed consent was obtained. Data collection was done by using pre-designed semi-structured proforma. This was developed by authors, reviewed by a team of experts (including psychologists and psychiatrists) and pilot tested on 5% of the sample size. Based on pilot testing, amendments were made to rectify the difficulties the respondents faced in interpretation of the questions.

The data collection was done in local Urdu language at a discrete place in a clinic. All face-to-face interviews were conducted by the principal investigator of the study. The demographic information and clinical details were obtained from the parents. Provisional diagnosis made by consultant psychiatrist was extracted from the patients' record. All participants were given study identification numbers which was used throughout the study and their names were not used anywhere. The data was kept in lock and key with the research team.

DATA ANALYSIS

The data was analyzed using the computer package Statistical Packages of Social Sciences version 22.0. Mean and standard deviation (SD) was computed for quantitative variables (age). Frequency and percentages were calculated for gender, socio-demographic factors and pattern of presentation. Stratification with respect to age, occupation, educational status of parents, gender, presenting symptoms, mode of referral and provisional diagnosis was done.

RESULTS

A total of 250 pediatric patients who fulfilled the inclusion criteria were enrolled in the study.

These included 161 (64.4%) male and 89 (35.6%) female patients. Mean age of patients was 9.55 ±3.374 years with minimum age as 2 years and maximum 18 years. Basic socio-demographic characteristics of patients are presented in table 1.

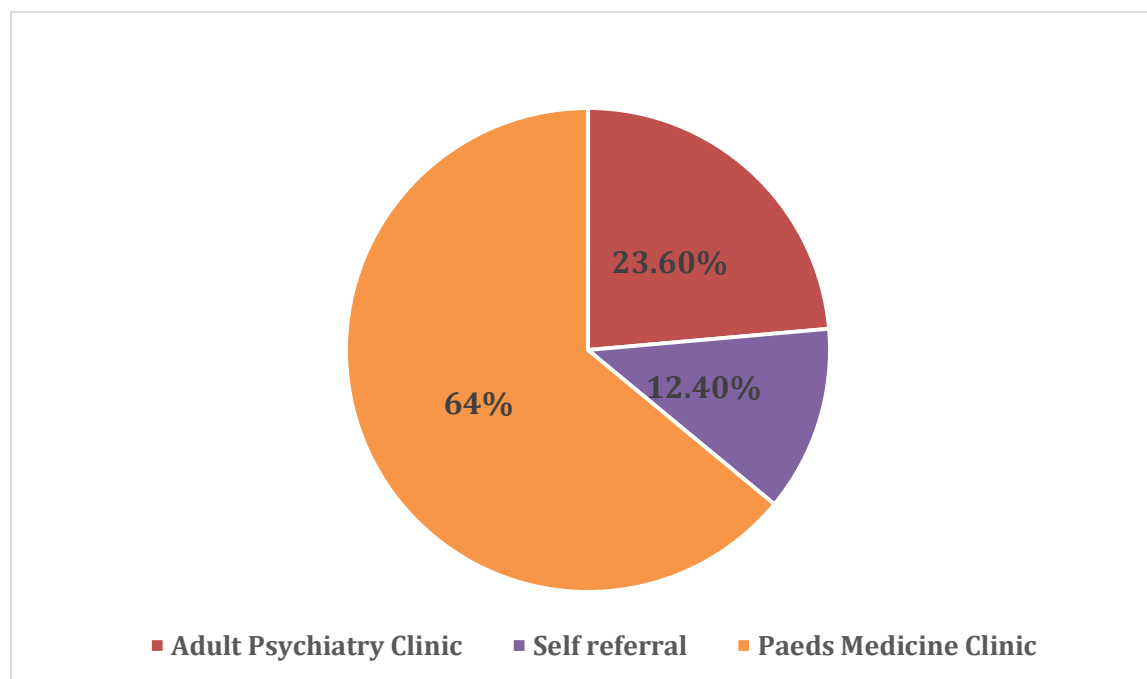
Table 1: Socio-demographic characteristics of the study participants (n=250)

Variables	Category	Frequency (n)	Percentages (%)
Age (years)	1-7	72	28.8
	8-12	132	52.8
	13 and above	46	18.4
Gender	Male	161	64.4
	Female	89	35.6
Patients' Education	Not studying	54	21.6
	Primary (including madrasah and tuition)	127	50.8
	Secondary	64	25.6
	Higher Secondary school	5	2.0

Mothers' Education	Preliterate	102	40.8
	Primary (including religious education)	63	25.2
	Secondary	50	20
	Intermediate	22	8.8
	Graduate or above	13	5.2
Fathers' Education	Preliterate	110	44
	Primary (including religious education)	72	28.8
	Secondary	45	18
	Intermediate	18	7.2
	Graduate	5	2
Fathers' employment status	unemployed	37	14.8
	Employed	210	84.0
	Not alive	3	1.2

Only 31 (12.4%) patients reported directly to the NICH child & adolescent psychiatry OPD while 160 (64%) patients received a referral from pediatric medicine OPD and remaining 59 (23.6%) patients were referred from adult psychiatry clinics (refer figure 1)

Figure 1: Sources of Psychiatric referral



Most of the patients were diagnosed to have stress and related disorders 126 (50.4%) while neurodevelopmental disorders were seen in 85 (34%) patients. Only 5 (2%) patients were diagnosed with psychotic and mood disorders, the remaining 34 (13.6%) patients either had a

suspected organic disorder, psychosocial problem or their diagnosis could not be specified. Detailed classification of patients with respect to diagnosis presented in table 2.

Table 2: Patterns of Psychiatric disorders in Children (n=250)

Category	Sub-Category	Frequency (n)	Percentages (%)
Psychotic and mood disorders (n=5)	Bipolar/related disorder	4	1.6
	Schizophrenia/related disorder	1	0.4
Stress and related disorders (n=126)	Major depressive disorder	42	16.8
	Anxiety spectrum disorder	25	10.0
	Dissociative disorder	1	0.4
	Somatic symptoms/related disorder	28	11.2
	Elimination disorder	7	2.8
	Disruptive/Impulse control/conduct disorders	19	7.6
	Obsessive compulsive/related disorder	3	1.2
	Trauma and related disorders	1	0.4
Neurodevelopmental Disorders (n=85)	ASD, ADHD and ODD/Behavioural issues	85	34.0
Others (n=34)	Suspected organic issue	6	2.4
	Non-specified	26	10.4
	Psychosocial issues	2	0.8

DISCUSSION

Our study identified the characteristics and patterns of psychiatric illness among children and adolescents at a tertiary care public sector hospital in Pakistan. The findings provided valuable insights into the demographic distribution, referral sources and clinical diagnoses.

A significant majority of these children seen in the study fell in between the 7 to 12-years age bracket, indicating that the mental health challenges tend to be more prominent during the school-age years. During this period, many of the children and adolescents face intense stress and anxiety. These findings are supported by another study which reported high levels of stress which could be associated to school or family dynamics.¹¹ A study from a tertiary care hospital of Karachi revealed preponderance of disorder in male gender as compared to female, with a majority occurring in children aged 5-10 years. The most frequent disorders included oppositional defiant disorder, ADHD, anxiety disorders, and elimination disorders.¹² Another outpatient based study conducted in Lahore by Imran et al.¹³ revealed that majority of children presenting to the child & adolescent psychiatry clinic had multiple and complex needs due to high frequency of learning disabilities and co morbidities.

Our study aligns with prior research suggesting that children within this age range frequently encounter academic difficulties and later develop poor self-esteem. If these obstacles are not

timely identified or poorly addressed, these can manifest into behavioral issues and predispose them to develop psychiatric disorders.^{11, 12, 13}

Consistent with a previous study, our study revealed a high male predominance among this population seeking psychiatric out-patient consultations.¹⁴ The predominance of male children and adolescents seeking psychiatric care in our study aligns with another study, where gender norms and expectations around masculinity were found to be linked to increased mental health burdens and risks particularly in boys and young men. Moreover, this may be attributable to societal pressures emphasizing traditional expectations from male gender and resultant stress. Therefore, these findings reflect the significance of considering gender norms and equity in mental health policies and interventions.¹⁵

Furthermore, the pediatric medicine OPD referred the majority of patients (64%), illustrating the critical role of pediatricians in identifying and initiating care for children and adolescents with symptoms of mental illness. Early intervention and effective care require close collaboration between pediatricians and child and adolescent psychiatrists.¹⁶

Our findings indicate high rates of stress-related disorders among these children and adolescents, echoing a similar trend reported in a study conducted later during the COVID19 pandemic, where the overall prevalence of depressive symptoms, anxiety symptoms, and sleep disturbances were significantly reported. They also discovered relationships with age, gender and academic grades supporting previous findings. This underscores the need for more child and adolescent mental health research and intervention design for this population.¹⁷

We discovered a second majority (83 cases) of neurodevelopmental disorders (NDDs) in children and adolescents. These statistics correlate with a study of children with NDDs who attend a hospital-based diagnostic service for their initial diagnostic and developmental assessment and highlights the critical need to identify additional struggles such as assessment for comorbid anxiety, depression, and other supports for early interventions. This underlines the importance of addressing these children's issues and needs, as well as establishing a multidisciplinary liaison between child and adolescent psychiatrists and pediatric professionals.¹⁸

Furthermore, we detected 25 children and adolescents with unspecified diagnoses, which corresponded to concerns raised in a study by Brugman et al. Their study assessed how preventive child healthcare professionals identify and manage psychosocial problems. Notably, 25% of the children in their research had psychological issues and other related disorders, which is consistent with our findings. However, it is critical to emphasize the difficulties identified by Brugman et al., in which some children did not receive appropriate intervention despite identification. This underscores the importance of refining identification processes to ensure comprehensive and timely interventions for children with non-specified mental health struggles to promoting their emotional well-being.¹⁹

The discovery of 5 instances of psychosis and mood disorders within a sample size of 250 is noteworthy, particularly given the established rarity of primary psychotic disorders in young individuals. It's uncommon for primary psychotic disorders to manifest in youth, with reported onset rates of 1 per 10,000 before age 18 and a peak age of onset between 15 and 30 years. Our

identification of early-onset cases, along with a male predominance, is consistent with general trends but underscores the necessity for further assessments and investigations into the presentation and diagnostic validity of these disorders in youth.²⁰

There are some limitations to the current study. The study was done in a single public sector hospital and used a cross-sectional methodology, which limited the generalizability of the findings. Furthermore, the lack of detailed socioeconomic context, reliance on clinical diagnosis, insufficient data, and no longitudinal follow-up information complicate interpretation and application of the results.

CONCLUSION

In conclusion, our study illuminates the demographic distribution, referral sources, and prevalent psychiatric disorders among children and adolescents at a tertiary care public sector hospital in Pakistan. Notably, there is a male predominance, particularly among the 7 to 12-year age range, with a substantial referral rate from pediatricians. The mix of stress disorders, neurodevelopmental disorders, and other diagnoses highlights the diverse nature of this population's mental health difficulties. The discovery of rare cases of psychosis and mood disorders in young people calls into question known age-related patterns, highlighting the need for deeper investigation into specific risk factors and diagnostic validity, as well as targeted clinical attention and research initiatives.

RECOMMENDATIONS

Given the observed male predominance and the prevalence of specific psychiatric disorders, it is crucial to enhance awareness and training among pediatricians for early detection and referral. The study's identification of rare cases of psychosis and mood disorders in youth highlights the need for specialized diagnostic and therapeutic approaches tailored to this demographic, necessitating further need to establish child and adolescent psychiatric services aligning with pediatricians and research to develop effective interventions.

A proper liaison between pediatricians and child psychiatrists is essential because pediatricians are at the forefront of identifying children and adolescents with mental health conditions. Furthermore, individuals who present directly to child and adolescent psychiatry services with a possible organic etiology require pediatric evaluation. This may imply creating a standardized bilateral referral pathway between them.

ETHICAL APPROVAL

Ethical approval of the study was obtained. **IERB Ex-12/2021**

PATIENTS' CONSENT

A written informed consent was obtained from all the participants.






COMPETING INTEREST

The authors declared no competing interest.

REFERENCES

1. What is Children's Mental Health. Children's Mental Health. Centre for Disease Control and Prevention. March 4, 2021. <https://www.cdc.gov/childrensmentalhealth/basics.html>
2. Scott JS, Mihalopoulos C, Erskine HE, Roberts J, Rahman A. Child Mental and Developmental Disorders. Mental, Neurological, and substance use disorders: Disease Control Priorities, 2016. 3(4):1-48.
3. World Health Organization. Improving the Mental and Brain Health of Children and Adolescents. WHO, 2021. <https://www.who.int/activities/improving-the-mental-and-brain-health-of-children-and-adolescents>
4. Benton T, Njoroge WF, Ng WY. Sounding the alarm for children's mental health during the COVID-19 pandemic. *JAMA pediatrics*. 2022:e216295.
5. Bera L, Souchon M, Ladsous A, Colin V, Lopez-Castroman J. Emotional and behavioral impact of the COVID-19 epidemic in adolescents. *Current psychiatry reports*. 2022;24(1):37-46.
6. Davidson LL, Grigorenko EL, Boivin MJ, Rapa E, Stein A. A focus on adolescence to reduce neurological, mental health and substance-use disability. *Nature*. 2015;527(7578). doi:10.1038/nature16030
7. UNICEF. Generation Unlimited: Investing in Pakistan's Young People. UNICEF, 2023 <https://www.unicef.org/pakistan/media/3311/file/Generation%20Unlimited%20-%20Investing%20in%20Pakistan's%20Young%20People.pdf>
8. Chachar AS, Mian AI. A Review of Intersection of Social Determinants and Child and Adolescent Mental Health Services: A Case for Social Psychiatry in Pakistan. *World Social Psychiatry*. 2022, 4(2): 69-77. DOI: 10.4103/wsp.wsp_23_22
9. Karachi Mental Health Report (KMHR). Department of Psychiatry, Aga Khan University Pakistan and Aman Foundation, 2012.
10. National Institute of Child Health (NICH). Welcome message. Executive director, NICH <https://www.web.vilords.com/NICH/>
11. Schulte-Körne G. Mental Health Problems in a School Setting in Children and Adolescents. *Dtsch Arztebl Int*. 2016; 113(11):183-190
12. Sarwat A, Ali SI, Ejaz MS. Mental health morbidity in children: A hospital based study in child psychiatry clinic. *Pak J Med Sci*. 2009 Oct 1;25(6):982-5.
13. Imran N, Bhatti MR, Anwar A, Najmi F, Haider II. Children's Mental Health: Pattern of referral, distribution of disorders and service use in child psychiatry outpatient setting. *Pakistan Journal of Medical Sciences*. 2012 Jan 1;28(1).
14. Klose M, Jacobi F. Can gender differences in the prevalence of mental disorders be explained by sociodemographic factors? *Archives of Women's Mental Health*. 2004;7:133-148.
15. Rice S, Oliffe J, Seidler Z, Borschmann R, Pirkis J, Reavley N, Patton G. Gender norms and the mental health of boys and young men. *Comment. The Lancet Public Health*. 2021;6(8):E541-E542.
16. Royal College of Pediatrics and Child health.. Role of paediatricians in supporting children and young people's mental health - position statement, 2020. <https://www.rcpch.ac.uk/resources/role-paediatricians-supporting-children-young-peoples-mental-health-position-statement>

17. Deng J, Zhou F, Hou W, Heybati K, Lohit S, Abbas U, Silver Z, Wong CY, Chang O, Huang E, Zuo QK, Moskalyk M, Ramaraju HB, Heybati S. Prevalence of mental health symptoms in children and adolescents during the COVID-19 pandemic: A meta-analysis. *Ann N Y Acad Sci.* 2023 Feb;1520(1):53-73. doi: 10.1111/nyas.14947.
18. Boulton KA, Guastella AJ, Hodge MA, Demetriou EA, Ong N, Silove N. Mental health concerns in children with neurodevelopmental conditions attending a developmental assessment service. *J Affect Disord.* 2023;335:264-272.
19. Brugman E, Reijneveld SA, Verhulst FC, Verloove-Vanhorick SP. Identification and Management of Psychosocial Problems by Preventive Child Health Care. *Arch Pediatr Adolesc Med.* 2001;155(4):462-469.
20. Brown JL, Bagley DA. Psychosis in Children and Adolescents. In: Miller L, Shy A, editors. *Psych TLC.* Department of Psychiatry, Division of Child & Adolescent Psychiatry. University of Arkansas for Medical Sciences, Psychiatric Research Institute; 2012.

Author		Mediclinical Faculty				
Sr. Order	Name	Affiliation	Contribution	Signature	E-mail	Cell No.
1 st Auth.	Fawad Suleman	Aga Khan University Pakistan	concept mapping, data analysis and interpretation of study findings, critically reviewed the manuscript		fawad.suleman@aku.edu	03131911148
2 nd Auth.	Samiya Iqbal	Aga Khan University Pakistan	contributed to literature search of the study, worked on the initial draft and critically reviewed the manuscript		samiya.iqbal@aku.edu	0332-5296189
3 rd Auth.	Zainab Sher	Aga Khan University Pakistan	worked on the initial draft of the manuscript		zainab.sher@aku.edu	03452104592
4 th Auth.	Liaquat Ali Halo	National Institute of Child Health, Karachi, Pakistan	data analysis and interpretation of study findings		driaquatphd@gmail.com	03003555883
5 th Auth.	Shahina Pirani	Aga Khan University Pakistan	contributed to literature search and methodology of the study worked on the initial draft of the manuscript		shahina.pirani@aku.edu	0333-3118233