Prescription Patterns in Child and Adolescent Psychiatry Outpatient from a Child and Adolescent Psychiatry Unit in Nepal

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Abstract

Background

Mental health treatment in children and adolescents involves both pharmacological and non-pharmacological methods. Pharmacotherapy is considered when symptoms are severe or non-pharmacological treatments are ineffective. Due to limited data on psychotropic prescribing patterns in children and adolescents in Nepal, this study aims to: (a) examine prescribing patterns in a tertiary care outpatient setting, (b) identify different psychotropics used and (c) determine the proportion of patients receiving these medications.

Methods

This study retrospectively examines the records of children and adolescents at the outpatient department of Child and Adolescent Psychiatry Unit (CAP), Kanti Children's Hospital (KCH), Nepal. Approval for the study was granted by KCH's Institutional Review Board (Reference no: 125). The analysis focused on data extracted from hospital records of outpatients at CAP Unit, KCH from 1st January 2024 to 31st December 2024 encompassing one year.

Results

Among 6,855 children and adolescents, 1,345 (19.62%) received prescriptions for psychotropic medications. Adolescents were the most common recipients of psychotropics (50.70%, n = 682), followed by school-aged children (43.12%, n = 580), and preschool children (6.17%, n = 83). The most commonly used psychotropic was sertraline (38.73%, n = 521), followed by risperidone (16.87%, n = 227), clonazepam (15.24%, n = 205), and atomoxetine (11.59%, n = 156). Among the different categories of psychotropics, selective serotonin reuptake inhibitors(SSRis) were the most frequently prescribed (57.24%, n = 770), followed by antipsychotics (24.16%, n = 325), benzodiazepines (21.24%, n = 286), and medications for Attention Deficit Hyperactivity Disorder (16.13%, n = 217). Monotherapy was observed in 77.39% (n = 1,041) of children and adolescents, making it more common than polypharmacy, which was observed in 22.60% (n = 304).

Conclusion

The study highlights key patterns in psychotropic prescribing among children and adolescents at a tertiary center in Nepal, with SSRIs and risperidone being the most frequently used. Adolescents were the primary recipients, and monotherapy was more common than combination treatments.

Keywords

Adolescent; children; prescribing pattern; psychotropics; Nepal

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INTRODUCTION

Mental health problems (MHPs) in children and adolescents (CAA) are quite significant. Worldwide prevalence of mental disorders in CAA is about 13.4%.[1] A scoping review of Nepal found that 10-20% of CAA may suffer from some form of mental disorder. [2] Mental illness is emerging globally not only affecting the adult but also CAA. The rise in mental illness in this age group could be affected by various factors like poverty, change in life style, education, environment, family structure, interpersonal conflict and peer pressure.[3] With the increase in mental illness, the prescription of psychotropics in CAA like antidepressant, antipsychotic, benzodiazepines and stimulant has also increased in the recent past. [4,5] Studies conducted in Japan and Botswana have highlighted differences in rates of pharmacotherapy among CAA.[6,7] In

Japan, only 15.6% of patients were prescribed psychotropic medications[6], whereas in Botswana, 50.4% of patients received pharmacological treatment.[7] Similarly, a study from India by Sowmya and Pandey reported a preference for atypical and newer classes of psychotropic drugs over conventional medications in the management of psychiatric disorders in CAA. Polypharmacy was within limits, indicating rational prescribing practices.[8] However, in Nepal, data on the frequency and types of psychotropic medications used in CAA is currently lacking. Therefore, this study aimed to a) examine the prescribing pattern of psychotropic medications in child and adolescent psychiatry (CAP) outpatients at a tertiary care center, b) identify the types of psychotropics used, and c) determine the proportion of CAA receiving these medications.

METHODS

This is a retrospective chart review of CAA presenting to CAP outpatient department (OPD) at Kanti Children's Hospital (KCH), Kathmandu, Nepal between 1st January 2024 to 31st December 2024 encompassing 1 year. KCH is a tertiary care center in Bagmati province. The first dedicated child and adolescent psychiatry service in Nepal was established at KCH, Kathmandu, in collaboration with non-governmental organizations (NGOs).[9] Recently, this unit has been integrated into the government health care system. The CAP unit at KCH provides outpatient and inpatient services to CAA with neurodevelopmental disorders and MHPs. The multidisciplinary team comprises of child and adolescent psychiatrists, psychiatrists, clinical psychologists, social workers and nurses. Child and Adolescent Psychiatrist or Psychiatrist first evaluates the child and family which is followed by another evaluation by a clinical psychologist.

Ethical approval was obtained from Institutional Review Board of KCH (Reference Number: 125) All case records from 1st January 2024 to 31st December 2024 (duration of 1 year) were included in the study. Case records of CAA requiring hospital admission were excluded. All cases had undergone a detailed clinical evaluation based on unstructured psychiatric interview and observation with both the child and parent/s by a child and adolescent psychiatrist or psychiatrist followed by a clinical psychologist. The register book had the following information: name, age, gender, address, diagnosis, treatment profile (medication and therapy). A patient is considered to receive multi-drug treatment when more than two medications were given at the same time. Pro forma was designed by the researchers based on previous studies.[10,11] Data extraction was done by a psychiatrist and medical officer from the unit who agreed on every information needed before they were recorded in the pro forma. However, records on which information could not be agreed on or with incomplete documentation on variables of interest were excluded from the analysis to minimize coding bias. Consent was not applicable as this was a retrospective study; however, confidentiality of data was maintained as patients and their family members were not recruited directly for the study. For analysis of data, the age group was categorized as pre-school (less than 6 years), school going (6-11 years) and adolescents (12-14 years). As the hospital is a tertiary care center, patients from all seven provinces are referred or come for treatment to this hospital, therefore patient population was also categorized according to provinces. Data were entered and analyzed in Microsoft Excel. Descriptive statistics were used to calculate frequencies, percentages and mean.

RESULTS

A total of 6,855 children and adolescents attended the outpatient services of CAP unit between January 1, 2024, and December 31, 2024. Of these, 1,345 CAA (19.62%) were prescribed psychotropic medications. The mean age of CAA who were prescribed psychotropics was 10 year 4 months (SD: 2.4) and among them 761 (56.57%) were boys. The adolescent age group were 682 (50.70%) followed by school going age group 580 (43.12%) and preschool group 83 (6.17%). There were 908 (68.58%) from Bagmati province (Table 1).

Table 1: Socio demographic profile of children and adolescents on psychotropics(n = 1,345)

Characteristics		n (%)
Age group	Preschool (<6 years)	83 (6.17%)
	School going (6-11 years)	580 (43.12%)
	Adolescents (12-14 years)	682 (50.70%)
Gender	Male	761 (56.57%)
	Female	584 (43.42%)
Provinces	Province 1	65 (49.09%)
	Province 2	106 (80.06%)
	Province 3	908 (68.58%)
	Province 4	72 (5.43%)
	Province 5	74 (5.58%)
	Province 6	50 (3.77%)
	Province 7	49 (3.70%)

The most common diagnosis was Anxiety Disorder 301 (22.37%) followed by Major Depressive Disorder 225 (16.72%) and Attention Deficit Hyperactivity Disorder (ADHD) 161 (12%). Among those prescribed psychotropics, 682 (50.70%) were adolescents, followed by 580 (43.12%) from the school-age group, and 83 (6.17%) from the preschool group. Monotherapy was used in 1,041 children (77.39%), while polypharmacy was observed in 304 children (22.60%) (Table2).

Table 2: Clinical variables of children and adolescents on psychotropics (n=1345)

Clinical variables		n (%)
Common diagnosis		
Anxiety Disorders		301(22.37%)
Major Depressive Disorder		225(16.72%)
Attention Deficit Hyperactivity Disorder (ADHD)		161(12%)
Dissociative Disorder		87(6.46%)
Adjustment Disorder		77(5.72%)
Autism Spectrum Disorder (ASD)		54 (4.01%)
Intellectual Disability		42(3.12%)
Enuresis		30(2.23%)
Somatoform Symptom Disorder		16(1.2%)
Posttraumatic Stress Disorder		16(1.2%)
Schizophrenia Spectrum and Other Psychotic Disorders		17(1.26%)
Obsessive Compulsive Disorder		10(0.74%)
Bipolar Affective Disorder		8(0.6%)
Oppositional Defiant Disorder		9(0.67%)
Conduct Disorder		8(0.6%)
Acute Stress Reaction		7(0.52%)
Others		69(5.13%)
Comorbidity		
Absent		1137(84.53%)
Present		208(15.46%)
With one comorbidity		201(14.94%)
With two comorbidities		7(0.52%)
Age wise distribution of pharmacotherapy		
Preschool (<6 years)		83 (6.17%)
School going (6-11 years)		580 (43.12%)
Adolescents (12 – 14 years)		682 (50.70%)
Prescribing pattern of psychotropics		**n(%)**
Monotherapy	Preschool (<6 years)	74 (5.50%)
	School going (6-11 years)	486 (36.13%)
	Adolescents (12-14 years)	481(35.76%)
	Total	1041 (77.39%)
Polypharmacy	Preschool (<6 years)	9 (0.66%)
	School going (6-11 years)	94 (6.98%)
	Adolescents (12-14 years)	201(14.94%)
	Total	304 (22.60%)

The most commonly prescribed psychotropic medication was sertraline, used in 521 cases (38.73%), followed by risperidone in 227 cases (16.87%), clonazepam in 205 cases (15.24%), and atomoxetine in 156 cases (11.59%). Among the different classes of psychotropics, selective serotonin reuptake inhibitors (SSRIs) were the most frequently prescribed, accounting for 770 prescriptions (57.24%), followed by antipsychotics with 325 (24.16%), benzodiazepines with 286 (21.24%), and medications for Attention Deficit Hyperactivity Disorder (ADHD) with 217 (16.13%). (Table 3).

Table 3: Types of psychotropic medications (n=1345)

Drug type		n(%)
SSRIs	Sertraline	521(38.73%)
	Escitalopram	138 (10.26%)
	Fluoxetine	110 (8.17%)
	Fluvoxamine	1 (0.07%)
	Total no of CAA on SSRIs	770 (57.24%)
Antipsychotics	Risperidone	227 (16.87%)
	Olanzapine	65 (4.83%)
	Aripiprazole	24 (1.78%)
	Queitiapine	8 (0.59%)
	Amisulpride	1 (0.07%)
	Total no of CAA on antipsychotics	325 (24.16%)
Selective Norepinephrine Reuptake Inhibitors (SNRIs)	Desvenlafaxine	5 (0.37%)
	Venlafaxine	2 (0.14%)
	Duloxetine	1(0.07%)
	Total no of CAA on SNRIs	9 (0.66%)
Medication for ADHD	Atomoxetine	156 (11.59%)
	Clonidine	39 (2.8%)
	Methlyphenidate	15 (1.11%)
	Modafinil	7 (0.52%)
	Total no of CAA on medication for ADHD	217 (16.13%)
Mood stabilizers	Sodium valproate	15 (1.11%)
	Lithium	7 (0.52%)
	Lamotrigine	3 (0.22%)
	Oxcarbamazepine	2 (0.14%)
	Total no of CAA on mood stabilizers	27 (2%)
Tricyclic antidepressants (TCA)	Imipramine	39 (2.8%)
	Amitriptyline	4 (0.29%)
	Nortriptyline	1(0.07%)
	Clomipramine	1(0.07%)
	Total no of CAA on TCA	45 (3.34%)
Benzodiazepines	Clonazepam	205 (15.24%)
	Alprazolam	77 (0.52%)
	Lorazepam	2 (0.14%)
	Clobazam	2 (0.14%)
	Total no of CAA on benzodiazepines	286 (21.24)
Noradrenergic and Specific Serotonergic Antidepressant (NaSSA).	Mirtazepine	5 (0.37%)
Others		13 (0.96%)

DISCUSSION

This study represents one of the first attempts to systematically evaluate psychotropic prescribing patterns among CAA in Nepal, and was conducted at the CAP Unit of KCH, a tertiary children's hospital. The study highlights important demographic, clinical, and pharmacological trends in this population.

The results show that psychotropic prescription rates in the outpatient setting were relatively low, with only 19.62% of CAA receiving psychotropics. This finding is notable

compared to international reports where prescription rates are often higher, particularly in high-income countries with well-established CAP services.[12] The lower rate of psychotropic prescriptions observed in this study from Nepal may reflect several factors, including sociocultural stigma toward medication use and clinicians' preference for psychosocial interventions when feasible. Additionally, the lower prescription rate may be influenced by the age range of the sample, which included only adolescents aged 12-14 years. At Kanti Children's Hospital, services are provided only to adolescents up to 14 years of age.

Sociodemographic Profile

Adolescents accounted for the highest proportion of psychotropic prescriptions (50.70%), followed by school-aged children (43.12%), and preschool children (6.17%). This distribution aligns with global findings that adolescence is the peak period for the emergence of MHPs[1] and possibly the need for psychotropics. This finding that a larger proportion of adolescents are on psychotropic medications compared to school-aged and preschool children is consistent with the results of a study conducted in Japan.[6] In addition, prescription of psychotropics for adolescents may also be more likely to present with mood and anxiety disorders requiring pharmacotherapy, while in younger children, clinicians often rely on behavioral and psychosocial interventions.

Gender distribution showed a higher proportion of males (56.57%) receiving psychotropics. Several factors may contribute to the lower number of female cases, such as the higher prevalence of internalizing disorders among females, parental reluctance to seek psychiatric help for girls due to fear of social stigma, and the greater social acceptance of mood disorders in females, among others.[13] This may also correspond to the higher prevalence of externalizing disorders such as ADHD in males, which often necessitate pharmacological treatment.[3] However, cultural factors influencing help-seeking behaviors, diagnostic patterns, and service utilization cannot be ruled out.

Prescription Patterns

More than half of the sample (57.24%) were prescribed SSRIs, with sertraline alone accounting for nearly 39% of all prescriptions. Given that Anxiety Disorders and Major Depressive Disorder were the most common diagnoses in our study, the high rate of SSRI prescriptions is understandable. This pattern also reflects global trends in the increasing use of SSRIs for depression and anxiety in pediatric populations, given their efficacy and safety profile relative to older antidepressants.[11] In the present study, only atypical antipsychotics were prescribed, with risperidone being the most commonly used, followed by olanzapine and aripiprazole. These findings are consistent with studies conducted in child and adolescent populations in outpatient settings in both Japan and India.[6,8] No prescriptions for typical antipsychotics were recorded. Atypical antipsychotics are generally preferred due to their lower risk of extrapyramidal side effects compared to typical antipsychotics.

The possible reasons for use of risperidone in 16.87% of the sample could be impulsivity and aggression posing injury to self and easy availability.[14] Neurodevelopmental disorders (NDDs), particularly the combination of ASD and ID were observed in 7.13% (n=96) of our sample. These conditions are frequently associated with symptoms such as irritability, meltdowns, and challenging behaviors, which often require pharmacological management. This may help explain the high rate of risperidone prescriptions in our study.[15]

The prescription of benzodiazepines (21.24%) warrants attention. Although clonazepam was commonly used, benzodiazepines are generally recommended only for short-term management due to risks of dependence, cognitive side effects, and tolerance. Their relatively high use in this cohort may reflect limited immediate alternatives for acute anxiety, sleep disturbances, or agitation.[16]

Similar studies in other contexts have documented rising psychotropic use in CAA, particularly for antidepressants and antipsychotics.[12] The predominance of SSRIs and risperidone in this study parallels international patterns, suggesting a convergence toward evidence-based prescribing despite contextual differences. However, the relatively high benzodiazepine use and low stimulant prescription diverge from global norms and highlight areas for further evaluation.

With the introduction of atomoxetine in Nepal, its use in the treatment of ADHD has increased. Our study reflects this trend, with atomoxetine being the most commonly prescribed ADHD medication (11.59%, n=156), followed by Clonidine (2.8%, n=39) and Methylphenidate (1.11%, n=15). This pattern contrasts with findings from a previous study conducted in Nepal by Karki et al [14], which reported clonidine as the most frequently used medication for ADHD, followed by atomoxetine, risperidone, and methylpheni-

date. Interestingly, methylphenidate use was low (1.11%) which is similar (1.8%) to previous study done in children with ADHD from Nepal.[14] The main reasons limiting the use of stimulant is lack of availability in our country, cost, or prescriber preference. Atomoxetine, a non-stimulant, may be chosen in contexts where stimulants are either inaccessible or considered culturally less acceptable.[17]

Polypharmacy is defined as the concurrent prescription of two or more medications to a patient[18] and it was observed in 22.60% of cases in our study, making it a notable finding. This trend is not unique to our center, studies from both developed [10,18,19] and developing countries[20,21] have similarly reported increasing use of multiple medications in the treatment of children and adolescents (CAA) with mental disorders. Comorbidity is more often the rule than the exception in child and adolescent psychiatry[22], which may partly explain the prevalence of polypharmacy.

Another contributing factor is the need for immediate symptom relief while awaiting the full therapeutic effect of a primary medication. A consensus statement by psychiatrists in the United Kingdom acknowledges certain instances of transitory polypharmacy as rational, particularly during gradual transitions from one psychotropic medication to another. Furthermore, one author argues that "the demerits of polypharmacy are not contained in 'where' the drugs are being used but in 'how' these drugs are being used"[21], emphasizing that rational and justifiable polypharmacy can in fact be beneficial.

Monotherapy was the predominant treatment approach, observed in 77.39% of cases. This is an encouraging finding, as polypharmacy in children and adolescents (CAA) has been linked to increased risks of adverse effects and limited evidence supporting greater efficacy.[10] The relatively cautious use of multiple medications in this setting suggests a thoughtful and judicious approach to prescribing.

The primary limitation of this study is its retrospective design. Issues such as incomplete documentation, missing clinical variables, and the inability to establish causality between diagnoses and medication choices limit the strength of the findings. Additionally, the absence of outcome data restricts any conclusions regarding the effectiveness or tolerability of the prescribed medications. There is also the potential for subjective errors or over reporting during the original register entries. The restriction of adolescent sample to ages 12 to 14 years, in line with hospital policy, may have contributed to a lower overall prescription rate. Adolescents older than 14 years are at greater risk of developing mental health conditions like schizophrenia and bipolar disorder, which often necessitate the use of psychotropic medications.

Despite these limitations, the study offers a valuable and comprehensive review of existing clinical data on prescribing patterns among children and adolescents (CAA) with mental health problems. The use of one year's worth of hospital records enabled the inclusion of a large sample (n = 1,345), providing insights based on real-world prescribing practices. The findings of this study highlight several critical areas for improvement in the mental health care of CAA in Nepal. High use of psychotropics like benzodiazepines and antipsychotics, often highlights the need for robust pharmacovigilance. The limited availability of essential psychotropic medications, such as stimulants for ADHD, restricts treatment options and may lead to suboptimal or off-label use of available medications. Updating the National Essential Medicines List and improving monitoring systems are critical. Further research on diagnostic trends, treatment outcomes, long term medication effects and patient experiences is needed to guide evidence-based policy and care tailored to Nepal's context.

CONCLUSION

This study offers the first overview of psychotropic prescribing patterns for children and adolescents at a tertiary care center in Nepal. The predominance of SSRIs and Risperidone aligns with international trends. However, the relatively high use of benzodiazepines and limited use of stimulant medications highlight prescribing practices shaped by local availability, regulatory policies, and clinical preferences.

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