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ORIGINAL ARTICLE

Assessing Pediatric Renal Disease Frequency and Social Factors in a Tertiary Hospital

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ABSTRACT

Background: *Pediatric renal diseases are an important cause of childhood morbidity, particularly in resource-constrained settings. This study assessed the clinical spectrum and sociodemographic factors among children with renal and urinary disorders attending a tertiary-care hospital in Bangladesh.* ***Methods & Materials:*** *A cross-sectional study was conducted in the Pediatric Nephrology Outpatient Department of Mugda Medical College & Hospital, Dhaka, from April to June 2026. Children aged ≤13 years with urinary tract infection (UTI), nephrotic syndrome, acute glomerulonephritis (AGN), hydronephrosis, or nocturnal enuresis were included in the analysis. Associations were assessed using the chi-square test and multivariable logistic regression, with statistical significance defined as p<0.05.* ***Results:*** *Children younger than five years constituted 61.1% of participants, and females accounted for 57.0%. More than half belonged to the lower socioeconomic group (51.3%), while 83.9% were urban residents. UTI was the most frequent diagnosis (34.7%), followed by nephrotic syndrome and AGN (20.2% each). Age was significantly associated with disease distribution (χ^2=12.355, p=0.0149). In multivariable analysis, children aged 5–13 years had significantly lower odds of hydronephrosis than those younger than five years (aOR=0.28, 95% CI: 0.11–0.71; p=0.008). Other sociodemographic and BMI-related variables showed no significant independent associations with disease occurrence.* ***Conclusion:*** *Pediatric renal morbidity in this tertiary-care population showed a diverse and clinically important disease spectrum, with UTI predominating. Younger age was independently associated with higher odds of hydronephrosis. Early recognition, appropriate referral, caregiver education, and equitable access to pediatric renal services are essential to improve clinical care and long-term kidney health outcomes.*

Keywords: *Pediatric renal disease; Urinary tract infection; Hydronephrosis; Nephrotic syndrome; Sociodemographic factors*

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INTRODUCTION

Pediatric renal diseases constitute an important cause of morbidity among children and encompass a heterogeneous spectrum of congenital, hereditary, glomerular, infectious, obstructive, and acquired disorders. Conditions include congenital anomalies of the kidney and urinary tract (CAKUT), nephrotic syndrome, glomerulonephritis, urinary tract infections (UTIs), acute kidney injury (AKI), obstructive uropathies, and chronic kidney disease (CKD). Although less frequently recognized in children than adults, renal disorders can adversely affect growth, cardiovascular health, neurocognitive development, educational attainment, quality of life, and long-term renal function.[1,2] Their epidemiology varies across populations because of differences in genetic, environmental, nutritional, healthcare, and diagnostic factors.[1-3] Among chronic pediatric kidney disorders, CAKUT represents a disease category and contributor to childhood CKD and kidney failure.[1,3] Its frequency and clinical spectrum vary with age, sex, geography, and healthcare setting. A multicenter study of hospital sized children in China identified more than 33,000 children with CAKUT between 2016 and 2022, with hydronephrosis, duplex collecting-system abnormalities, and other structural anomalies being prominent.[4] A systematic review and meta-analysis demonstrated associations between CAKUT and prematurity, low birth weight, maternal diabetes, maternal obesity, and advanced maternal age.[5] These findings highlight the influence of early developmental and perinatal factors and timely recognition of structural abnormalities. CKD in childhood is important because it may persist throughout life and progress to kidney failure. Pediatric CKD differs etiologically from adult disease, with congenital and developmental abnormalities being especially prominent.[1,3] Progression is influenced by the underlying diagnosis, kidney function, proteinuria, blood pressure, age, and clinical factors.[6] Hypertension and proteinuria are important modifiable risk factors, while glomerular disease and advanced renal impairment may accelerate deterioration.[6,7] Early diagnosis, monitoring, and treatment are therefore essential to delay progression and reduce the need for kidney replacement therapy (KRT). AKI is another cause of pediatric renal morbidity and may occur

with severe infection, dehydration, critical illness, surgery, nephrotoxic exposure, and systemic conditions. [8] Meta-analysis of more than 200,000 hospitalized children estimated that AKI occurred in approximately one-quarter, with substantially higher mortality in low- and middle-income countries (LMICs) than in high-income countries. [9] Pediatric AKI remains under-recognized, with estimates influenced by diagnostic criteria, surveillance, laboratory availability, and healthcare access. [10] AKI may also contribute to subsequent chronic kidney dysfunction and disability. The burden of pediatric kidney disease extends beyond clinical findings. Children with CKD may experience impaired growth, cardiovascular complications, psychological difficulties, reduced educational participation, and diminished quality of life. [2,11] Frequent medical visits, investigations, dietary modifications, medications, and prolonged treatment can interfere with school attendance and activities. Caregivers may also experience financial pressure and disruption of employment or household responsibilities. [11,12] Socioeconomic circumstances have also been associated with academic performance among children with CKD, indicating that kidney disease can affect developmental and social domains. [13] Social determinants of health are increasingly recognized as important influences on pediatric kidney health. Socioeconomic position includes household income, parental education, employment, housing, geographic location, and access to resources. [12] Disadvantaged families may experience greater healthcare barriers and poorer outcomes. [12] In pediatric CKD, socioeconomic disadvantage may influence diagnosis, follow-up, specialist consultation, and appropriate treatment access. The relationship may also be bidirectional because CKD itself can create financial and social disadvantage for affected families. [12] Geographic and neighborhood characteristics may influence pediatric kidney outcomes. Data from the chronic kidney disease in Children (CKID) cohort showed that lower neighborhood income was associated with greater hospitalization and emergency utilization among children with CKD. [14] Although some associations with progression were attenuated after adjustment, socioeconomic environment remained relevant to healthcare utilization. [14] Rural residence may create barriers because families may travel considerable distances to access pediatric nephrology services. Travel, financial constraints, limited specialists, and inadequate local resources may delay assessment and treatment. [15] These challenges are particularly important in LMICs, where pediatric nephrology services may be concentrated in a few tertiary-care institutions. Evidence indicates shortages of trained pediatric nephrologists, diagnostic facilities, specialized medicines, dialysis infrastructure, and transplantation services in many resource-constrained settings. [16,17] Even where services exist, affordability and accessibility remain barriers. International assessments have identified shortages of healthcare personnel, pediatric supplies and diagnostic facilities as major obstacles to comprehensive renal care. [17] Access to KRT is an example of global inequity in pediatric kidney care. Children with kidney failure may require dialysis or transplantation when conservative treatment is insufficient, yet access varies substantially between countries and socioeconomic groups. [18,19] Children in LMICs may experience delayed diagnosis, limited maintenance dialysis, inadequate transplantation opportunities, and treatment interruptions because of financial constraints.[18,19] Socioeconomic inequality, geographic barriers, healthcare workforce shortages, and limited diagnostic capacity collectively contribute to inequitable pediatric kidney outcomes. [19,20] The situation is also relevant to Bangladesh and other South Asian settings, where pediatric renal disorders are encountered across healthcare levels. Tertiary hospitals often receive children with severe, complicated, recurrent, or previously undiagnosed renal conditions. Hospital-based studies can provide valuable information on disease spectrum, frequency, demographic characteristics, referral patterns, and social factors. Although tertiary-care data may over represent severe disease and children with better referral access, such studies remain valuable where population-based renal registries are limited. Studies have also identified barriers to psychosocial and educational support and associations between socioeconomic factors, education, and quality of life in advanced CKD. [21,22] Despite increasing recognition of these issues, evidence gaps remain in tertiary-care settings in resource-constrained countries. Many studies emphasize disease classification or clinical outcomes without examining demographic and socioeconomic circumstances surrounding presentation. Conversely, social determinant studies may focus on children already receiving specialized care and may not capture barriers before diagnosis or referral. Combining disease frequency with social factors may therefore provide a broader understanding of pediatric renal morbidity and healthcare utilization. The present study was designed to assess the frequency and spectrum of pediatric renal diseases among children attending a tertiary-care hospital and to evaluate selected demographic and socioeconomic factors associated with their presentation and management. By integrating clinical findings with social characteristics, this study aims to identify vulnerable groups and provide evidence for improving early recognition, timely referral, treatment continuity, caregiver education, and equitable access to pediatric renal services. Understanding pediatric renal disease and contextual determinants is essential for developing strategies to improve child kidney health and long-term outcomes.

METHODS & MATERIALS

A cross-sectional study was conducted in the Pediatric Nephrology Outpatient Department of Mugda Medical College & Hospital, Dhaka, Bangladesh, from April to June 2026. A total of 193 children aged ≤13 years with diagnosed or clinically suspected urinary tract infection (UTI), nephrotic syndrome, acute glomerulonephritis (AGN), hydronephrosis, or nocturnal enuresis were included. Children were enrolled after obtaining informed consent from their parents or legal guardians and when relevant clinical and sociodemographic information was available. Children aged >13 years, those without consent, incomplete records, duplicate or unverifiable records, or those referred for conditions outside the predefined disease categories were excluded. The study variables included age, gender, socioeconomic status, residence, parental education and occupation, disease category, and BMI. Descriptive statistics were used to summarize categorical variables using frequencies and percentages. The association between age group and disease category was assessed using the Chi-square (χ^2) test. A χ^2 value of 12.355 with a p-value of 0.0149 was observed, with statistical significance defined as $p<0.05$. No inferential tests were performed for gender, socioeconomic status, residence, or BMI; therefore, these variables were interpreted descriptively. Informed consent was obtained from all participants' parents or legal guardians. Participant confidentiality and privacy were maintained throughout the study. Institutional permission

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was obtained from the concerned authority of Mugda Medical College & Hospital before data collection.

RESULTS

The study included 193 pediatric participants, with children younger than five years comprising the majority of the study population (61.1%), while those aged 5–13 years accounted for 38.9%. Females represented 57.0% of the participants compared with 43.0% males. More than half of the participants belonged to the lower socioeconomic class (51.3%), followed by the middle (36.8%) and upper (11.9%) socioeconomic groups. Most children resided in urban areas (83.9%), whereas 16.1% were from rural areas. Regarding parental characteristics, day laborer was the most common paternal occupation (32.1%), while maternal education was most frequently at the HSC level (35.2%). Paternal educational attainment was comparatively higher, with graduates comprising 34.7% of fathers. These sociodemographic characteristics are presented in *Table I*. The distribution of renal diseases according to age group demonstrated a statistically significant association (χ^2 = 12.355, p = 0.0149). Among children younger than five years, urinary tract infection was the most frequently diagnosed condition, followed by hydronephrosis and nephrotic syndrome, whereas acute glomerulonephritis was the predominant diagnosis among children aged 5–13 years. The detailed age-specific distribution of renal diseases is presented in *Table II*. The distribution of renal diseases according to socioeconomic status is summarized in *Table III*, where UTIs and nephrotic syndrome were observed across the different socioeconomic categories. *Table IV* presents the distribution according to place of residence, with urban children accounting for the majority of cases across the disease categories. The distribution of renal diseases according to BMI categories is shown in *Table V*, demonstrating variation across underweight, normal-weight, overweight, and obese groups. Multivariable logistic regression analysis was performed to determine the independent associations between selected sociodemographic and anthropometric variables and individual renal disease categories (*Table VI*). Age group was the only variable demonstrating a statistically significant association with hydronephrosis. Children aged 5–13 years had significantly lower odds of hydronephrosis than those younger than five years (adjusted odds ratio [aOR] = 0.28, 95% confidence interval [CI]: 0.11–0.71; p = 0.008). In contrast, age, sex, socioeconomic status, residence, and BMI were not significantly associated with UTI, nephrotic syndrome, or acute glomerulonephritis. Overall, the findings indicate that age group was significantly associated with the distribution of pediatric renal diseases and independently associated with hydronephrosis, whereas the other examined sociodemographic and anthropometric characteristics did not demonstrate statistically significant independent associations.

Table I: Sociodemographic Characteristics of the Study Participants (*n* = 193)

Variable	n	%
Age group		
<5 years	118	61.1
5–13 years	75	38.9
Gender		
Male	83	43.0
Female	110	57.0
Socioeconomic status		
Lower	99	51.3
Middle	71	36.8
Upper	23	11.9
Residence		
Urban	162	83.9
Rural	31	16.1
Father's occupation		
Day laborer	62	32.1
Service holder	50	25.9
Business	38	19.7
Farmer	35	18.1
Teacher	8	4.1
Mother's education		
Primary	58	30.1
SSC	48	24.9
HSC	68	35.2
Graduate	19	9.8
Father's education		
Primary	29	15.0
SSC	39	20.2
HSC	58	30.1
Graduate	67	34.7

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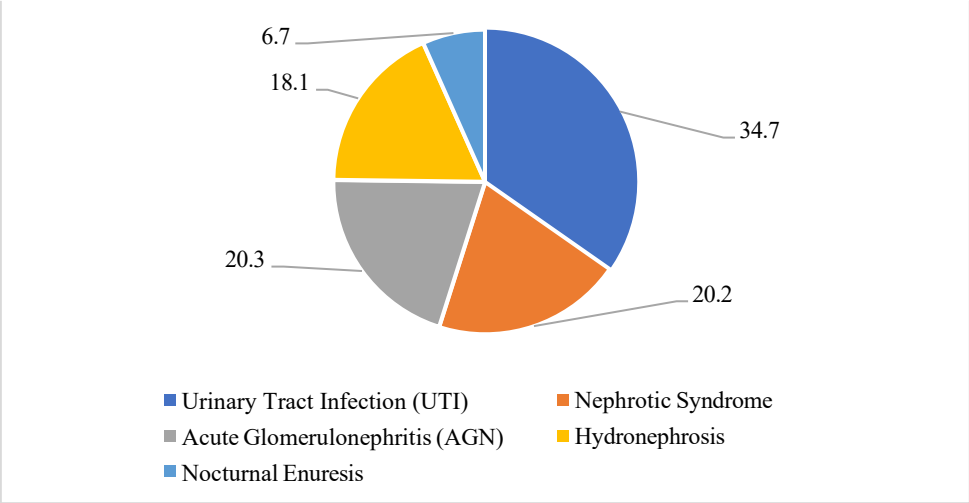


Figure 1: Distribution Urinary Tract Infection (UTI)on of Pediatric Diseases Among Study Participants (*n* = 193)

Table II: Distribution Urinary Tract Infection (UTI)on of Pediatric Diseases According to Age Group

Disease	<5 years, n	5–13 years, n	χ^2	p-value
Urinary Tract Infection (URINARY TRACT INFECTION (UTI))	38	29		
Nephrotic Syndrome	25	14		
Acute Glomerulonephritis (AGN)	17	22	12.355	0.0149
Hydronephrosis	28	7		
Nocturnal Enuresis	10	3		
Total	118	75		

Interpretation: Statistically significant association was observed between age group and disease category (p = 0.0149).

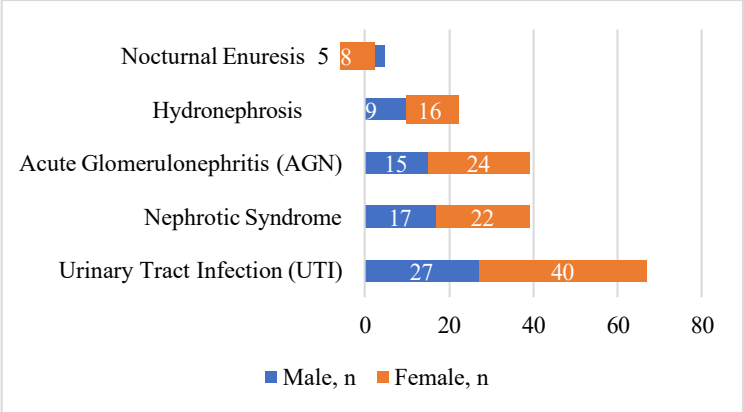


Figure 2: Distribution Urinary Tract Infection (UTI)on of Pediatric Diseases According to Gender

Table III: Association Between Socioeconomic Status and Pediatric Diseases

Disease	Lower, n	Middle, n	Upper, n
Urinary Tract Infection (UTI))	30	29	8
Nephrotic Syndrome	19	16	4
Acute Glomerulonephritis (AGN)	21	10	8
Hydronephrosis	21	12	2
Nocturnal Enuresis	8	4	1
Total	99	71	23

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Table IV: Association Between Residence and Pediatric Diseases

Disease	Urban, n	Rural, n
Urinary Tract Infection (URINARY TRACT INFECTION (UTI))	52	15
Nephrotic Syndrome	32	7
Acute Glomerulonephritis (AGN)	36	3
Hydronephrosis	31	4
Nocturnal Enuresis	11	2
Total	162	31

Table V: Association Between BMI Category and Pediatric Diseases

Disease	Underweight, n	Normal, n	Overweight, n	Obesity, n
Urinary Tract Infection (UTI))	23	19	14	11
Nephrotic Syndrome	8	9	12	10
Acute Glomerulonephritis (AGN)	6	12	10	11
Hydronephrosis	8	9	5	13
Nocturnal Enuresis	1	5	4	3
Total	46	54	45	48

Table VI: Multivariable Logistic Regression Analysis of Factors Associated with Pediatric Renal Diseases

Disease	Variable	Adjusted OR	95% CI	p-value
UTI	Age (<5 years)	1.00	Reference	–
	Age (5–13 years)	0.97	0.52–1.81	0.925
	Male	1.00	Reference	–
	Female	1.12	0.60–2.10	0.721
	Lower SES	1.00	Reference	–
	Middle SES	0.88	0.44–1.76	0.722
	Upper SES	0.72	0.27–1.92	0.511
	Urban	1.00	Reference	–
	Rural	0.65	0.28–1.51	0.319
	Underweight	1.00	Reference	–
	Normal	1.12	0.48–2.61	0.794
	Overweight	0.82	0.34–1.98	0.656
	Obesity	0.61	0.25–1.51	0.286
Nephrotic Syndrome	Age (<5 years)	1.00	Reference	–
	Age (5–13 years)	1.12	0.52–2.38	0.771
	Male	1.00	Reference	–
	Female	0.89	0.42–1.88	0.758
	Lower SES	1.00	Reference	–
	Middle SES	1.24	0.57–2.68	0.588
	Upper SES	0.76	0.22–2.61	0.663
AGN	Age (<5 years)	1.00	Reference	–
	Age (5–13 years)	0.84	0.40–1.76	0.641
	Male	1.00	Reference	–
	Female	1.32	0.63–2.76	0.459
	Lower SES	1.00	Reference	–
	Middle SES	0.65	0.28–1.51	0.316
	Upper SES	1.88	0.68–5.18	0.224
Hydronephrosis	Age (<5 years)	1.00	Reference	–
	Age (5–13 years)	0.28	0.11–0.71	0.008*
	Male	1.00	Reference	–
	Female	1.34	0.62–2.89	0.451
	Lower SES	1.00	Reference	–
	Middle SES	0.72	0.31–1.67	0.444
	Upper SES	0.41	0.09–1.92	0.256

**Statistically significant ($p < 0.05$)*

DISCUSSION

The present study provides a clinically and socially oriented assessment of pediatric renal diseases among 193 children attending a tertiary-care hospital. The findings demonstrate a diverse spectrum of urinary and renal disorders, with urinary tract infection (UTI), nephrotic syndrome, acute glomerulonephritis (AGN), hydronephrosis, and nocturnal enuresis representing the major diagnostic categories. The study also examined age, sex, socioeconomic status, parental education and occupation, residence, and body mass index (BMI), thereby providing a broader understanding of the demographic and socioeconomic context of pediatric renal morbidity. Recent evidence indicates that pediatric kidney health is influenced not only by biological factors but also by socioeconomic circumstances, healthcare accessibility, and health-system resources. [1-3] Children younger than five years constituted the majority of participants (61.1%),

whereas those aged 5–13 years accounted for 38.9%. This age distribution is clinically relevant because pediatric renal and urinary disorders frequently demonstrate age-dependent patterns of presentation. The predominance of younger children may partly reflect tertiary-care referral patterns, particularly for recurrent UTI, congenital abnormalities, and structural renal disorders. CAKUT is an important contributor to pediatric chronic kidney disease (CKD) and kidney failure and has a recognized developmental origin.[4-6] Hydronephrosis was particularly concentrated among younger children in the present study, consistent with its recognized association with congenital or developmental urinary tract abnormalities.[5,6] These findings emphasize the importance of early recognition and appropriate follow-up of children with suspected structural abnormalities. UTI was the most frequent diagnosis, affecting 67 of 193 participants (34.7%). UTI is among the most common bacterial infections in children, and its presentation varies according to age, sex, urinary tract anatomy, and host-related factors.[7,8] Recurrent or inadequately treated infection may result in renal parenchymal injury and subsequent renal scarring.[9] A systematic review and meta-analysis reported renal scarring in more than one-third of children following UTI, with higher proportions among girls and children with vesicoureteral reflux.[10] In the present study, 38 UTI cases occurred among children younger than five years compared with 29 cases among those aged 5–13 years. However, age was not independently associated with UTI in multivariable analysis (AOR 0.97, 95% CI: 0.52–1.81; p=0.925), suggesting that age alone did not independently predict UTI after adjustment for the variables included in the model. Nephrotic syndrome was the second most frequent diagnosis, occurring in 39 children (20.2%), including 25 children younger than five years and 14 aged 5–13 years. Childhood nephrotic syndrome is an important glomerular disorder associated with recurrent disease, infection risk, thrombotic complications, nutritional disturbances, and treatment-related adverse effects.[11,12] A systematic review and meta-analysis estimated the incidence of idiopathic nephrotic syndrome at approximately 2.92 per 100,000 children annually, although considerable geographic variation has been reported.[13] The relatively high proportion observed in this cohort may partly reflect the referral characteristics of the study hospital, where children requiring specialist evaluation and prolonged management are more likely to be represented. AGN accounted for 39 participants (20.2%), including 17 children younger than five years and 22 aged 5–13 years. The greater number among older children is clinically plausible because post -infectious glomerular disease commonly follows preceding infections and may be recognized more frequently in school-aged children. Acute post-streptococcal glomerulonephritis remains an important acquired renal disorder, particularly in developing settings.[14] However, age was not independently associated with AGN (AOR 0.84, 95% CI: 0.40–1.76; p=0.641). Therefore, the observed age distribution should be interpreted descriptively rather than as evidence of an independent age effect. Hydronephrosis demonstrated the clearest age-related finding. There were 28 cases among children younger than five years compared with seven among those aged 5–13 years. Children aged 5–13 years had significantly lower odds of hydronephrosis than younger children (AOR 0.28, 95% CI: 0.11–0.71; p=0.008), representing the only statistically significant independent association identified in the regression analysis. Childhood hydronephrosis is frequently associated with congenital or developmental urinary tract abnormalities, including ureteropelvic junction obstruction and vesicoureteral reflux.[5,6] Antenatally detected urinary tract dilatation may resolve spontaneously or persist and subsequently be associated with CAKUT.[15] The present finding supports early assessment and follow-up of younger children with suspected structural urinary tract abnormalities. Nocturnal enuresis was identified in 13 children (6.7%) and represented the least frequent diagnostic category. Although enuresis is not necessarily a primary renal disorder, urinary symptoms may coexist with UTI, bladder dysfunction, constipation, developmental factors, or structural abnormalities. Because of the small number of cases, meaningful statistical inference was limited. Appropriate clinical assessment is therefore necessary to distinguish monosymptomatic enuresis from cases associated with lower urinary tract dysfunction or other underlying pathology. Females represented 57.0% of participants compared with 43.0% males. Female sex is an established risk factor for UTI beyond early infancy, and girls may have a greater risk of renal scarring following UTI, particularly in the presence of vesicoureteral reflux.[7,8,10] Nevertheless, female sex was not independently associated with UTI (AOR 1.12, 95% CI: 0.60–2.10; p=0.721), nephrotic syndrome (AOR 0.89, 95% CI: 0.42–1.88; p=0.758), or AGN (AOR 1.32, 95% CI: 0.63–2.76; p=0.459). These findings emphasize the distinction between established epidemiological tendencies and statistically demonstrated associations within a specific clinical population. The socioeconomic profile provides an important additional dimension. More than half of the participants (51.3%) belonged to the lower socioeconomic group, compared with 36.8% in the middle and 11.9% in the upper group. UTI was most frequent among children from the lower socioeconomic group (30 cases), followed by the middle (29 cases) and upper groups (8 cases). Nephrotic syndrome and hydronephrosis also showed greater absolute numbers among children from lower socioeconomic backgrounds. However, because formal statistical testing was not performed for these cross-tabulations, these findings should be interpreted as descriptive rather than causal. Socioeconomic disadvantage may influence healthcare access, medication affordability, diagnostic investigations, transportation, and continuity of follow-up.[1-3,17] Most participants resided in urban areas (83.9%), whereas 16.1% were from rural settings. This distribution should not be interpreted as evidence of higher disease prevalence among urban children, as it may reflect the location of the tertiary hospital, referral pathways, transportation availability, and differential access to specialist services. Pediatric nephrology services are frequently concentrated in major urban centers, particularly in resource-constrained settings.[2,17] Rural families may therefore experience additional financial and geographical barriers to specialist consultation and regular follow-up[18] Parental education and occupation further illustrate the socioeconomic context. Graduate-level education was reported among 34.7% of fathers compared with 9.8% of mothers, while 35.2% of mothers had completed HSC education. Educational attainment may influence health literacy, recognition of symptoms, treatment understanding, and healthcare-seeking behavior.[1] Day laborers constituted the largest paternal occupational group (32.1%), potentially indicating financial instability and limited flexibility for repeated hospital attendance. Such circumstances may be particularly challenging for children requiring prolonged treatment and follow-up.[17] BMI showed a heterogeneous distribution, with 46 participants classified as underweight, 54 as normal weight, 45 as

overweight, and 48 as obese. UTI, nephrotic syndrome, and AGN occurred across BMI categories. Multivariable analysis did not demonstrate a significant independent association between BMI and UTI. Compared with underweight children, the adjusted odds of UTI were 1.12 for normal-weight children (p=0.794), 0.82 for overweight children (p=0.656), and 0.61 for obese children (p=0.286). These findings do not provide evidence of an independent BMI association within this cohort; however, the sample may have been insufficient to detect smaller effects. Several limitations should be considered. The tertiary-care, hospital-based design limits generalizability because referral patterns may preferentially capture children with severe, recurrent, or complicated disease. The modest sample size of 193 participants may have reduced statistical power, particularly for less frequent conditions. The cross - sectional design prevents determination of temporal or causal relationships between sociodemographic characteristics and disease occurrence. Furthermore, the socioeconomic, residence, and BMI cross-tabulations were descriptive because formal statistical testing was not performed. Future multicenter studies with larger populations should incorporate additional clinical, environmental, genetic, healthcare-access, and longitudinal variables. Despite these limitations, the study has important clinical and public-health implications. The high frequency of UTI supports timely diagnosis, appropriate management, and evaluation of recurrent infections for possible underlying urinary abnormalities. The significant association between younger age and hydronephrosis emphasizes the importance of early recognition and assessment of structural urinary tract abnormalities. The predominance of participants from lower socioeconomic backgrounds also highlights the need to reduce financial and geographic barriers to pediatric renal care. Strengthening referral pathways, improving primary-level recognition, enhancing caregiver education, and ensuring continuity of specialist follow-up may facilitate earlier diagnosis and better outcomes. In conclusion, pediatric renal morbidity in this tertiary-care population comprised a broad spectrum of urinary, structural, and glomerular disorders. UTI was the most frequent diagnosis, followed by nephrotic syndrome and AGN, while hydronephrosis showed a clear concentration among younger children. The only statistically significant independent association was between age and hydronephrosis, with children aged 5–13 years having significantly lower odds than those younger than five years. Although most sociodemographic comparisons were descriptive, the predominance of lower socioeconomic status highlights the importance of social determinants in pediatric renal care. Integrating clinical surveillance with attention to socioeconomic barriers may facilitate earlier diagnosis, equitable access to treatment, and improved long-term kidney outcomes among children.

CONCLUSION

This study demonstrates a diverse spectrum of pediatric renal disorders in a tertiary-care setting, with UTI, nephrotic syndrome, AGN, and hydronephrosis being the major conditions. UTI was the most common diagnosis, while lower socioeconomic status was prevalent among participants. Age was significantly associated with hydronephrosis, with lower odds among children aged 5–13 years. Other demographic, socioeconomic, and BMI-related factors showed no significant independent associations. Early diagnosis, appropriate referral, caregiver education, and equitable access to renal care are essential for improving pediatric kidney health outcomes.

LIMITATIONS

This study has several limitations. Its single-center, tertiary-care design may limit generalizability and introduce referral bias toward severe or complicated cases. The relatively small sample size (n=193) may have reduced statistical power, particularly for less frequent conditions. The cross-sectional design also prevents assessment of temporal or causal relationships. Socioeconomic status, parental education, and occupation may not fully capture the complexity of socioeconomic circumstances and healthcare access. The predominance of urban participants may have resulted in underrepresentation of rural children. Additionally, several potentially relevant factors, including treatment adherence, family history, distance from healthcare facilities, nutritional status, and environmental exposures, were not comprehensively assessed. Finally, the absence of inferential testing for some categorical comparisons limits interpretation of observed differences. Future multicenter, prospective studies with larger samples and comprehensive assessment of social determinants are recommended.

RECOMMENDATIONS

Early recognition and appropriate management of pediatric renal and urinary disorders should be strengthened at primary and secondary healthcare levels, with timely referral to pediatric nephrology and urology services when required. Particular attention should be given to recurrent UTIs and suspected structural abnormalities in young children. Caregiver education regarding warning symptoms, treatment adherence, follow-up, and timely healthcare-seeking should also be emphasized. Healthcare programs should address socioeconomic and geographic barriers to ensure continuity and equitable access to specialized renal care. Tertiary hospitals should maintain standardized pediatric renal disease registries to support disease surveillance and service planning. Finally, larger multicenter prospective studies are recommended to further evaluate the clinical, socioeconomic, and environmental determinants of pediatric renal diseases and guide context-specific interventions.

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