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Prevalence of Risk Factors and Preventive Practices Regarding Nephrolithiasis Among Adolescent Students in Selected College at Virudhunagar, Tamil Nadu

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ABSTRACT

Background: Nephrolithiasis, commonly known as kidney stone disease, is an important health concern among young people and is associated with modifiable factors such as inadequate fluid intake, unhealthy dietary habits, sedentary lifestyle, and other behavioural factors. Early identification of risk factors and promotion of appropriate preventive practices may help reduce the risk of stone formation.

Aim: To assess the prevalence of predisposing risk factors and preventive practices related to nephrolithiasis among adolescent students in a selected college at Virudhunagar, Tamil Nadu.

Methodology: A quantitative descriptive research design was adopted for the study. A total of 100 students aged 18–21 years were selected using purposive sampling. Data were collected using a structured interview schedule and scales assessing risk factors and preventive practices related to nephrolithiasis. Descriptive statistics, including frequency and percentage, and inferential statistics using the Chi-square test were employed for data analysis.

Results: The study findings revealed statistically significant associations between the assessed risk factors for nephrolithiasis and selected demographic variables, including age, gender, place of residence, family monthly income, dietary habits, and source of information. Preventive practices were also found to be significantly associated with selected demographic variables, including age, gender, year of study, type of family, religion, place of residence, family monthly income, dietary habits, and source of information, at the 0.05 level of significance.

Conclusion: The findings indicate that demographic and lifestyle characteristics are associated with nephrolithiasis-related risk factors and preventive practices among the study participants. The study emphasizes the importance of strengthening health education regarding adequate hydration, healthy dietary practices, regular physical activity, and appropriate lifestyle modifications to promote the prevention of nephrolithiasis among young people.

Keywords: Nephrolithiasis, Kidney Stones, Risk Factors, Preventive Practices, Adolescents, Health Education.

I.INTRODUCTION

Nephrolithiasis, commonly referred to as kidney stone disease, is a prevalent urological condition that can cause considerable morbidity and impose a substantial healthcare burden. The formation of urinary stones occurs when urine becomes supersaturated with stone-forming substances such as calcium, oxalate, uric acid, and phosphate, resulting in crystal formation and subsequent stone growth. Calcium oxalate is reported to be the most frequently occurring type of urinary stone. Clinical manifestations may include severe renal colic, haematuria, urinary obstruction, and, in severe or recurrent cases, impairment of renal function. Recurrence is also common, emphasizing the importance of preventive measures and long-term lifestyle modification.

The development of nephrolithiasis is influenced by both non-modifiable and modifiable factors. Inadequate fluid intake, unhealthy dietary patterns, obesity, physical inactivity, and other lifestyle-related behaviours may contribute to an increased risk of stone formation. Environmental conditions, particularly hot climates and inadequate hydration, may further increase susceptibility to nephrolithiasis.

Adolescence and early adulthood are important stages for establishing lifelong dietary and lifestyle behaviours. Inadequate awareness of kidney stone risk factors may result in poor hydration practices, unhealthy food choices, and insufficient physical activity. Early identification of risk factors and promotion of preventive practices may therefore contribute to reducing the future burden of nephrolithiasis.

Need for the Study

Nephrolithiasis is increasingly recognized as a health concern among younger populations. Although many risk factors are preventable, students may not adequately recognize the importance of fluid intake, dietary modification, regular physical activity, and healthy urinary habits in preventing kidney stone formation. Limited awareness may contribute to the development of unhealthy behaviours that persist into adulthood.

Assessing risk factors and preventive practices among college students can provide useful information for planning appropriate health education. Nurses have an important role in identifying modifiable risk factors, promoting adequate hydration, encouraging healthy dietary practices, and providing lifestyle education. Therefore, the present study was undertaken to assess the risk factors and preventive practices related to nephrolithiasis among students in a selected college at Virudhunagar.

Statement of the Problem

A study to assess the prevalence of risk factors and preventive practices regarding nephrolithiasis among adolescent students in a selected college at Virudhunagar.

Objectives

1. To assess the prevalence of risk factors related to nephrolithiasis among adolescent students in a selected college at Virudhunagar.
2. To assess the preventive practices related to nephrolithiasis among adolescent students in a selected college at Virudhunagar.
3. To determine the association between risk factors and preventive practices related to nephrolithiasis and selected demographic variables among adolescent students.

II.METHODS

Research Design

A non-experimental descriptive research design was adopted to assess the risk factors and preventive practices regarding nephrolithiasis among adolescent students.

Setting

The study was conducted at Sri Vidhya Arts and Science College, Virudhunagar, a self-financed, co-educational institution affiliated with Madurai Kamaraj University.

The institution offers various undergraduate programmes and caters to students from rural and semi-urban areas with diverse socioeconomic backgrounds.

Population

The target population comprised students aged **18–21 years** studying at Sri Vidhya Arts and Science College, Virudhunagar.

Sample and Sample Size

The sample consisted of **100 students aged 18–21 years** who fulfilled the eligibility criteria.

Sampling Technique

A **purposive sampling technique** was employed to select the participants.

Inclusion Criteria

Students were included in the study with:

- age 18–21 years
- studying at the selected college
- willing to participate in the study and
- available during the period of data collection.

Data Collection Tools

Data were collected using structured tools consisting of:

- a demographic questionnaire
- a structured assessment of nephrolithiasis-related risk factors and
- a rating scale/checklist to assess preventive practices.

The tools focused on relevant demographic characteristics, history and risk factors associated with nephrolithiasis, hydration, dietary habits, urinary practices, physical activity, and other preventive lifestyle behaviours.

Data Collection Procedure

Prior permission was obtained from the concerned authorities of the selected college before commencement of data collection. The purpose of the study was explained to the participants, and informed consent was obtained. Data were collected from 100 eligible students over a period of one week using the structured tools.

Following completion of data collection, a self-instructional module on nephrolithiasis, associated risk factors, and preventive practices was provided to the participants to improve their awareness regarding prevention.

Data Analysis

The collected data were systematically coded, tabulated, and analyzed using descriptive and inferential statistics.

Descriptive statistics: Frequency and percentage were used to summarize the demographic characteristics, risk factors, and preventive practices.

Inferential statistics: The Chi-square test was used to determine the association between risk factors and preventive practices related to nephrolithiasis and selected demographic variables. The level of significance was set at $p < 0.05$.

III.RESULTS

Demographic Characteristics

Among the 100 participants, 43% were 19 years old, while 51% were male. More than half of the participants (52%) were studying in the second year. The majority belonged to nuclear families (65%), followed Hindu religion (87%), lived in rural areas (69%), and reported a non-vegetarian dietary pattern (77%). Regarding socioeconomic characteristics, 42% reported a monthly family income of Rs.11,000–Rs.15,000. More than half of the participants (58%) had no prior information regarding nephrolithiasis. With respect to nephrolithiasis-related history, the majority of students reported no previous diagnosis of kidney stones (93%), no symptoms suggestive of kidney stones (89%), and no family history of kidney stones (86%). Most participants had not sought medical attention for kidney-stone-related problems (97%) and had not received treatment for such problems (95%).

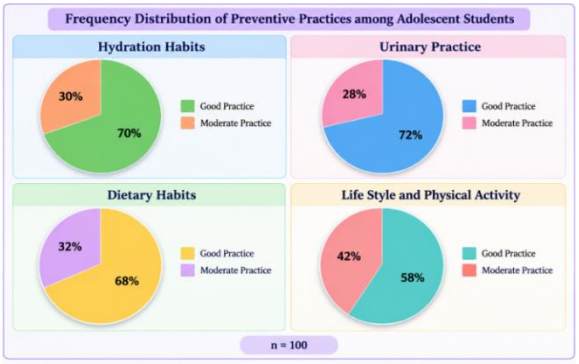
Overall, the findings suggested that although the reported history of nephrolithiasis and related problems was low among the participants, awareness regarding the condition was inadequate.

Prevalence of Risk Factors Related to Nephrolithiasis

The assessment revealed that 8% of participants were identified as having major nephrolithiasis-related risk factors based on the study assessment. These included factors such as previous kidney stone occurrence, related symptoms, family history, and history of medical consultation or treatment. Although most participants did not report a previous diagnosis of nephrolithiasis, the presence of risk-related behaviours and limited awareness indicates the need for preventive health education among college students.

Preventive Practices Regarding Nephrolithiasis

The assessment of preventive practices demonstrated that 86% of the participants had good preventive practices, whereas 14% had poor preventive practices. The practices assessed included adequate hydration, healthy dietary habits, appropriate urinary habits, physical activity, and other lifestyle behaviors associated with the prevention of nephrolithiasis. The findings indicate that the majority of students followed appropriate preventive practices; however, a proportion of participants still demonstrated inadequate practices, highlighting the need for continued health education.



Association between Study Variables and Demographic Characteristics

The findings demonstrated a statistically significant association between nephrolithiasis-related risk factors and selected demographic variables, including age, gender, year of study, type of family, religion, place of residence, family monthly income, dietary habits, and source of information ($p < 0.05$).Preventive practices were also found to have a statistically significant association with selected demographic characteristics at the 0.05 level of significance. Therefore, the null hypothesis was rejected for the variables showing a statistically significant association.

IV.DISCUSSION

The present study assessed risk factors and preventive practices related to nephrolithiasis among 100 students aged 18–21 years in a selected college at Virudhunagar. The findings revealed that 8% of participants had major risk factors for nephrolithiasis, while most had no previous history, symptoms, or family history of kidney stones. Although the occurrence was relatively low, the presence of modifiable risk factors highlights the need for preventive measures.

Regarding preventive practices, 86% of participants demonstrated good practices, whereas 14% had poor practices. Adequate hydration, healthy dietary habits, regular physical activity, and a healthy lifestyle are important in reducing the risk of nephrolithiasis. Significant associations between risk factors and selected demographic variables further indicate the need for targeted health education.

Nurses have an important role in prevention through early identification of risk factors, promotion of adequate fluid intake and healthy dietary practices, encouragement of physical activity, and guidance regarding timely medical consultation. Regular health education programmes in colleges can further strengthen students' knowledge and preventive practices.

V.CONCLUSION

The present study was conducted to assess risk factors and preventive practices related to nephrolithiasis among 100 students aged 18–21 years in a selected college at Virudhunagar. A non-experimental descriptive research design was used, and data were collected using structured tools. The findings showed that 8% of the students had major risk factors, while 86% had good preventive practices and 14% had poor practices.

Significant associations were found between risk factors and selected demographic variables such as age, gender, year of study, family type, religion, place of residence, family income, dietary habits, and source of information. Preventive practices were also significantly associated with selected demographic variables. The findings highlight the need for early identification of risk factors and health education on adequate fluid intake, healthy dietary habits, regular physical activity, proper urinary habits, and timely medical care. Nurses can play an important role in educating students and promoting healthy practices to help prevent nephrolithiasis.

VI.NURSING IMPLICATIONS

Nurses can help prevent nephrolithiasis by identifying risk factors early and educating students about adequate hydration, healthy diet, physical activity, proper urinary habits, and timely medical care. Nursing educators can include nephrolithiasis prevention in student health programmes using simple teaching methods such as posters, demonstrations, and videos. The findings can guide future nursing research using larger samples and intervention studies. Nursing administrators can support regular screening and awareness programmes in educational institutions through collaboration with healthcare professionals.

Declaration by Authors

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