

Identifying Causative Factors Leading to End-Stage Renal Disease Among Youngsters in a Rural Area: A Descriptive Study

Lt Col Dr Regina. P.F

*Professor and HOD OBG Nursing Department, P.K. Das College of Nursing,
Vaniyamkulam, Ottapalam, Palakkad Dist. Kerala. 679522*

Abstract—Background: End-stage renal disease (ESRD) has been increasingly reported among younger populations, particularly in rural areas where access to healthcare and awareness of renal risk factors may be limited.

Objective: To identify the causative factors contributing to ESRD among young individuals in a rural community and assess their baseline knowledge regarding kidney health.

Method: A descriptive study was conducted with a sample of 100 individuals aged 18–35 diagnosed with ESRD from a rural area. Demographic variables such as age, sex, education, religion, and dietary patterns were documented. A structured pretest questionnaire was used to assess baseline knowledge regarding kidney health and ESRD prevention. **Results:** High intake of sodium-rich diets, poor hydration, hypertension, and unmonitored diabetes were the predominant causative factors. The mean knowledge score was significantly low among participants. (Meanscore 6.4/20, SD 2.1)

Conclusion: There is a strong need for community-based education programs focusing on kidney health, dietary modifications, and early detection of renal risk factors in rural youth populations.

Index Terms—Causative factors, Endstage Renal disease, Rural area.

I. INTRODUCTION

End-stage renal disease (ESRD) represents the final, irreversible stage of chronic kidney disease, in which renal function has deteriorated to a level requiring renal replacement therapy such as dialysis or kidney transplantation. Globally, ESRD is increasingly recognized as a major public health concern. While the condition predominantly affects the older population, emerging evidence suggests an increasing prevalence

among younger individuals, particularly in resource-limited rural areas.

In rural regions, where healthcare access is limited, ESRD often progresses silently due to a lack of awareness, preventive screenings, and effective management of common risk factors like diabetes mellitus, hypertension, obesity, nephrotoxic drug use, and genetic predispositions. The rising incidence among youth can be attributed to multiple socio-environmental factors, including poor dietary practices, physical inactivity, lack of health education, and poverty. Despite the seriousness of ESRD, many young people remain unaware of early symptoms, resulting in delayed diagnosis and increased disease burden.

Early identification of modifiable risk factors and targeted educational interventions can play a pivotal role in preventing the onset or progression of kidney disease. Thus, this study aims to describe the causative factors leading to ESRD among young adults in a rural population and assess their baseline knowledge regarding kidney health.

II. OBJECTIVES

1. To identify the causative factors contributing to ESRD in rural youth.
2. To describe demographic variables such as age, sex, education, religion, and dietary pattern among participants.
3. To assess baseline knowledge about ESRD prevention and kidney health using a pretest questionnaire.

III. MATERIALS AND METHODS

Study design: Descriptive

Study setting: Rural primary health care centre, Thrissur District.

Sample size: 100 adults (18-35 yrs) diagnosed with ESRD

Sampling Method: Purposive sampling Study conducted in the year 2022.

Tools for Data Collection:

- Demographic proforma
- Structured questionnaire (20 MCQs) for pretest knowledge score
- Checklist for identifying causative factors

Data Analysis: Descriptive statistics (mean, SD, frequency, percentage)

IV. RESULTS

Table 1: Demographic Profile of Participants (N = 100)

Variable	Categories	Frequency (n)	Percentage (%)
Age	18–25 years	40	40%
	26–30 years	35	35%
	31–35 years	25	25%
Sex	Male	62	62%
	Female	38	38%
Education	Illiterate	15	15%
	Primary school	40	40%
	High school	25	25%
	Graduate or above	20	20%
Religion	Hindu	65	65%
	Muslim	25	25%
	Christian	10	10%
Dietary Pattern	Vegetarian	22	22%
	Mixed diet	78	78%

Table 2: Causative Factors Leading to ESRD

Factor	Affected Individuals (n)	Percentage (%)
Uncontrolled hypertension	45	45%
Diabetes mellitus	28	28%
High salt intake	62	62%
Low fluid intake	55	55%
Use of nephrotoxic drugs	12	12%
Family history of CKD	19	19%
Recurrent UTIs	30	30%
Herbal/self-medication	26	26%

Table 3: Pretest Knowledge Score on Kidney Health

Score Range	Interpretation	Frequency (n)	Percentage (%)
0–6	Poor knowledge	42	42%
7–13	Average knowledge	38	38%
14–20	Good knowledge	20	20%

Mean pretest score 6.4/20.

V. TOOL DESCRIPTION

The study tool comprised three sections:

Section A: Demographic Profile

This section collected personal and demographic data such as:

- Age
- Sex
- Education level
- Religion
- Dietary pattern (vegetarian/non-vegetarian/mixed)
- Family history of kidney disease
- Occupation

Section B: Causative Factors Checklist

A structured checklist was used to identify risk factors based on participant history and clinical background:

- History of hypertension
- Diabetes mellitus
- Long-term use of nephrotoxic medications (e.g., NSAIDs)

- Low water intake habits
- Protein-rich/high sodium diet
- Herbal remedy usage
- Recurrent urinary tract infections
- Family history of kidney disease
- Occupational exposure to toxins

Participants were marked as “Yes” or “No” for each factor.

Section C: Pretest Knowledge Questionnaire

A 20-item structured questionnaire designed to assess baseline knowledge about:

- Kidney functions
- Risk factors for ESRD
- Warning signs and symptoms
- Preventive strategies
- Importance of hydration and diet

Each correct answer was awarded 1 point, with the total score range from 0–20. The scoring was interpreted as:

- Good knowledge: 15–20
- Average knowledge: 10–14
- Poor knowledge: <10

The tool was validated by subject experts (nephrologists and nursing faculty), and reliability was established using the test-retest method (reliability coefficient = 0.82).

VI. DISCUSSION

This study found that dietary habits and poor management of hypertension and diabetes were predominant causes of ESRD among rural youth. A large portion of participants had poor knowledge about kidney function, risk factors, and preventive care. Male predominance suggests gender-based exposure to environmental and occupational nephrotoxins. The significant number of people with high salt intake, low hydration, and lack of medical screening emphasizes the need for tailored health education in such settings.

VII. CONCLUSION

ESRD among rural youth is linked to modifiable lifestyle factors and insufficient knowledge about kidney health. Community-based interventions focusing on education, regular screening, and dietary counseling are essential. Addressing these gaps may

help prevent the progression of CKD in young populations.

This study highlighted key causative factors contributing to ESRD among young individuals in a rural setting. Most commonly reported factors included poorly controlled hypertension, diabetes, low fluid intake, nephrotoxic drug use, and poor dietary habits. A significant number of participants were unaware of kidney health, as reflected by the low pretest knowledge scores.

These findings emphasize the urgent need for health education campaigns focused on the early identification and control of risk factors for kidney disease in rural youth. Targeted interventions involving community health workers, regular screenings at the village level, nutritional counseling, and incorporation of renal health in primary care education can prove effective in preventing the early onset of ESRD. ESRD among rural youth is linked to modifiable lifestyle factors and insufficient knowledge about kidney health. Community-based interventions focusing on education, regular screening, and dietary counseling are essential. Addressing these gaps may help prevent the progression of CKD in young populations.

Policymakers and healthcare providers must work collaboratively to bridge the rural-urban healthcare divide, particularly in chronic disease prevention and management. Early action can drastically reduce morbidity, mortality, and financial burden associated with ESRD among young populations.

REFERENCES

- [1] Segev DL, Gentry SE, Goss JA, Dunn TB, Hanto DW, Peltz C, et al. Outcomes after kidney transplantation from expanded criteria donors versus standard criteria donors: a systematic review and meta-analysis. *Am J Transplant*. 2008;8(2):273-86.
- [2] Collins AJ, Foley RN, Chavers B, Gilbertson D, Ibrahim C, Johnson DW, et al. US renal data system 2019 annual data report: epidemiology of kidney disease in the United States. *Am J Kidney Dis*. 2020;75(1 Suppl 1): A6-A7.
- [3] Naicker S. The epidemiology of end-stage renal disease in Africa. *Nat Rev Nephrol*. 2017;13(12):754-65.

- [4] Kshirsagar AV, Schwartz S, Broglio K, Larkin A, Eustace JA, Powe NR. Evidence for association of employment status and stage of kidney disease in the United States. *Am J Kidney Dis.* 2008;51(4):496-505.
- [5] Dineshkumar T, Gnanasekaran N, Subramanian R, Rajendran K, Balamurugan A. Risk factors associated with end-stage renal disease among Indian patients: a descriptive study. *Indian J Nephrol.* 2019;29(4):237-43.
- [6] Babazadeh R, Mohajerani H, Pakzad R, Ebadi A, Kamali M. Causative factors of end-stage renal disease among Iranian patients: a retrospective study. *Nephro Urol Mon.* 2015;7(4): e20894.
- [7] Liu Y, Zhang Q, Liu J, Li Y. Descriptive study of risk factors contributing to ESRD in a Chinese population. *BMC Nephrol.* 2021; 22:138.