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RESEARCH ARTICLE

ASSESSMENT OF KNOWLEDGE REGARDING RISK FACTORS OF RENAL CALCULI AMONG FEMALE STUDENTS IN SELECTED ENGINEERING COLLEGE, TIRUPATI

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ABSTRACT

Introduction: Renal calculi is one of the most common disorders among urological diseases. Renal stone formation is a multifactorial condition. **Objectives**: To assess the knowledge on risk factors of renal calculi among female students and to determine the association between level of knowledge on risk factors of renal calculi with selected demographic variables. **Methodology:** Quantitative cross sectional research design was used and 300 female engineering students were selected by using systematic random sampling technique. Informed consent was taken from all the participants. Data was collected using a self- structured questionnaire. **Results**: Majority 227 (75.7%) of participants having inadequate knowledge, 39 (13%) of participants having moderate knowledge and only 34 (11.3%) of participants having adequate knowledge on risk factors of renal calculi. The associations of demographic variables with the level of knowledge on prostate cancer were determined by using chi-square test which revealed that, age, education of father, education of mother, occupation of father, occupation of mother, monthly family income, type of residence, type of diet, frequency of intake of non vegetarian diet, family history are statistically significant at $p<0.01$ level. **Conclusion:** The study concluded that majority of female engineering students had inadequate knowledge on risk factors of renal calculi. Hence there is a need to improve the knowledge regarding risk factors and preventive measures of renal calculi.

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INTRODUCTION

The presence of a solid material in the urinary tract, normally developed to the passage of urine is termed "nephrolithiasis" or "renal stone disease." The solid material formed in the urinary tract is termed "renal calculi." Kidney stone formation is a multifactorial condition that involves interaction of environmental and genetic factors. In addition, the presence of kidney stones is strongly related to chronic kidney disease, bone loss and fractures, kidney cancer, coronary heart disease, hypertension, and metabolic syndrome. Eating habits, alcohol consumption and smoking act as risk factors in kidney one stone formation. Some other factors include age, gender, race, diuretic use, low fluid intake, and low urine volume. Regular drinking of tea, kidney stones history, and brain work are the risk factors of kidney calculi.

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Globally, kidney stone disease prevalence and recurrence rates are increasing, with limited options of effective drugs. Kidney stones affect about 12% of the world population at some stage in their lifetime. It affects all ages, sexes, and races but occurs more frequently in men than in women within the age of 20–49 years. Recent studies have reported that the prevalence of kidney stones has been increasing in the past decades in both developed and developing countries, is growing trend is believed to be associated with changes in lifestyle modifications such as lack of physical activity and dietary habits and global warming. One of the more striking new trends appears to be the increased incidence of stone formation in women. The increase in incidence of women affected by urinary tract stone disease has outpaced that of men. Although nephrolithiasis continues to be more common in men, the incidence rate ratio of men to women with urinary tract stones has narrowed from 3.4 to 1.3.

Objectives

- To assess the knowledge on risk factors of renal calculi among female students.
- To find out the association between level of knowledge on risk factors of renal calculi with selected demographic variables.

Operational Definitions

Assessment: - It refers to determine the knowledge regarding risk factors of renal calculi among female engineering students.

Knowledge: - It refers to the awareness as measured by the desired response to a self structured questionnaire on risk factors of renal calculi.

Risk Factors: - A risk factor is any attribute, characteristic or exposure of an individual that increases the likelihood of developing renal calculi.

Renal Calculi: - Renal calculi are solid concretions or stones formed in the kidneys from the dissolved urinary minerals.

Female: - Females refers to the age group of 18 to 25 years in the selected engineering college.

Selected Engineering College: The area selected for conducting the study is college of engineering, Sri Padmavathi Mahila Vishvavidhyalayam at Tirupati.

Hypothesis:

Ho1:- There will be no significance difference with the level of knowledge on risk factors of renal calculi among students

Ho2:-There will be significant association between level of knowledge on risk factors of renal calculi with selected socio-demographic variables.

Assumptions

- Students may not have knowledge on renal calculi.
- Participants who will co-operate respond appropriately to questionnaire.
- Awareness improves the knowledge of students, which will help them in future to prevent renal calculi.

Conceptual framework: The conceptual framework in this study was based on Irwin M. Rosen stock's Health Belief Model. According to this Health Belief Model suggests that people's belief about health problems, perceived benefits of action and self- efficacy explain engagement (or lack of engagement) in health- promoting behaviour. A stimulus or cue of action may also be present in order to trigger the health-promoting behaviour.

This model comprises of 3 components:

- Individual perceptions.
- Modifying factors.
- Likelihood of action.

METHODOLOGY

Research approach: The research approach adopted was **Quantitative research approach** to achieve the objective of the study, which is felt to be most appropriate in the field of education for its practicability in real life situations.

Research design: The research design selected for the present study was cross-sectional descriptive research design.

Setting of the study: The study was conducted in College of engineering, Sri Padmavathi Mahila Vishvavidhyalam, Tirupati.

Population: The population in this study includes female students who are studying in college of engineering, Sri Padmavathi Mahila Vishvavidhyalam, Tirupati.

Sample: Sample consists of female students who are in College of engineering, Sri Padmavathi Mahila Vishvavidhyalam, Tirupati.

Sample size: Sample size consists of 300 students who come under inclusion criteria.

Sampling technique: Systematic random sampling technique was adopted.

Criteria for sample selection

Inclusion criteria

Students who are

- In the age group of 18-25 years
- Willing to participate in the study and available at the time of data collection.

Exclusion criteria

Students who are

- Who have previous history of renal calculi.

Tool

The tool was developed with the help of related literature from various textbooks, journals, websites, discussions and guidance from experts in the field of nursing and urology.

The tool consists of II sections

- **Section-I: -** Consists of socio demographic data
- **Section-II: -** A self structured questionnaire to assess the knowledge on risk factors of renal calculi among female students. It consists of 33 multiple choice questions.

Scoring Key

- **Section-I: -** By coding the demographic variables.
- **Section-II: -** Multiple choice questions were given on risk factors of renal calculi with four options "a/b/c/d". In the questionnaire, the correct option carries "1 mark".

Scoring Interpretation: There are total 33 questions regarding the knowledge on risk factors of renal calculi.

0-50% - Inadequate knowledge.
51-75% - Moderate knowledge.
>76%-100% - Adequate knowledge.

Reliability of the tool: Reliability was established by internal consistency reliability method using cronbach's alpha for level of knowledge on risk factors of renal calculi. The tool was found reliable with a score of r= 0.81

Pilot study

- Formal permission was obtained from head of the department.
- Thirty students who were in engineering college and come under inclusion criteria were selected for the pilot study.
- Rapport was established with the self introduction to the students and written consent was obtained from the students to participant in the study.
- Instructions were given to the participants to answer the questionnaire frankly.
- Then the questionnaire was administered and the responses of the participants were noted.
- After the questionnaire was answered, a booklet was given to the students, which consists of aspects of risk factors of renal calculi and preventive measures of renal calculi.
- Statistical analysis was done by using descriptive and inferential statistics.

RESULTS

Demographic data shows that with respect of age majority 79 (26.30%) were in the group of 18 years, 280 (93.30%) were Hindus, 115 (38.30%) of fathers were graduates and postgraduates, 110 (36.70%) of mothers had primary education, 112 (37.30%) fathers were private employees, 221 (73.70%) of mothers are homemakers, 116 (38.70%) had income between Rs.10,000 to 20,000 per month, 170 (56.70%) were from rural area, 108 (36.00%) takes 2 litres of water per day, 238 (79.30%) takes non vegetarian diet, 150 (63%) takes non vegetarian diet once in a week, 260 (86.70%) had habit of intake of junk food, 105 (40.40%) takes junk food once in a week, 221 (73.70%) had no family history of renal calculi, 61 (77.20%) were belongs to I degree relationship, 100 (33.30%) had gain information about renal calculi from family. Table 1 shows that 227 (75.70%) of students having inadequate knowledge, 39 (13.00%) of students having moderate knowledge and only 34 (11.30%) of students having adequate knowledge on risk factors of renal calculi.

So the null hypothesis $H_0$1 which states that, there may be no significant level of knowledge on risk factors of renal calculi among students was accepted. Table-2: shows that the total mean score was 17.24 ± 5.465. Considering general information on renal calculi the mean score was 7.31 ± 1.827. With regarding to risk factors the mean score was 9.93 ± 4.306. The association between level of knowledge on risk factors of renal calculi with selected demographic variables revealed that, age is significantly associated with level of knowledge on risk factors of renal calculi with a chi- square value of 21.3, education of father shows significant association with chi- square value of 20.16, education of mother shows significant association with chi- square value of 36.19, occupation of father shows significant association with chi-square value of 37.26, occupation of mother shows significant association with chi- square value of 39.61, family income shows significant association with chi- square value of 36.11.

Type of residence shows significant association with chi-square value of 17.22, type of diet shows significant association with chi- square value of 24.52, frequency of non vegetarian diet shows significant association with chi- square value of 18.02, family history regarding renal calculi shows significant association with knowledge with chi- square value of 10.74 which are statistically significant at $p<0.01$ level. The other variables were not having any significant association with knowledge on risk factors of renal calculi. So the null hypothesis Ho2 which states that**,** there will be no significant association between level of knowledge on risk factors of renal calculi with selected socio-demographic variables was rejected.

The correlation of demographic variables among female engineering students revealed that age, education of father, education of mother, occupation of father, occupation of mother, monthly family income, residence, type of diet, frequency of intake of non vegetarian, relationship to the family member who are having the history of renal calculi were significant at $p<0.01$

DISCUSSION

The purpose of the study was to assess the knowledge regarding risk factors of renal calculi among female students in selected engineering college, Tirupati. This assessment helps to provide knowledge regarding risk factors, causes, and prevention of renal calculi. The study finding shows that 227 (75.70%) of students having inadequate knowledge, 39 (13.00%) of students having moderate knowledge and only 34 (11.30%) of students having adequate knowledge on risk factors of renal calculi.

The association between level of knowledge on risk factors of renal calculi with selected demographic variables revealed that age is significantly associated with level of knowledge on risk factors of renal calculi with a chi- square value of 21.3, education of father shows significant association with chi-square value of 20.16, education of mother shows significant association with chi- square value of 36.19, occupation of father shows significant association with chi- square value of 37.26, occupation of mother shows significant association with chi- square value of 39.61, family income shows significant association with chi- square value of 36.11.

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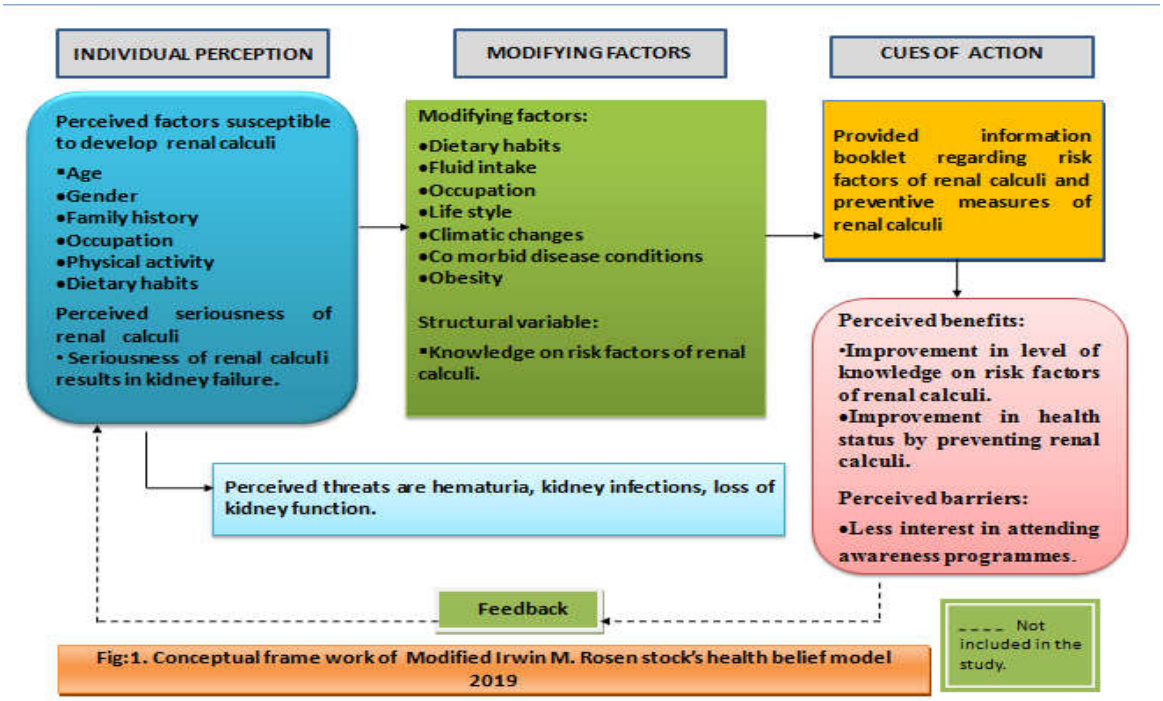

Fig:1. Conceptual frame work of Modified Irwin M. Rosen stock's health belief model 2019

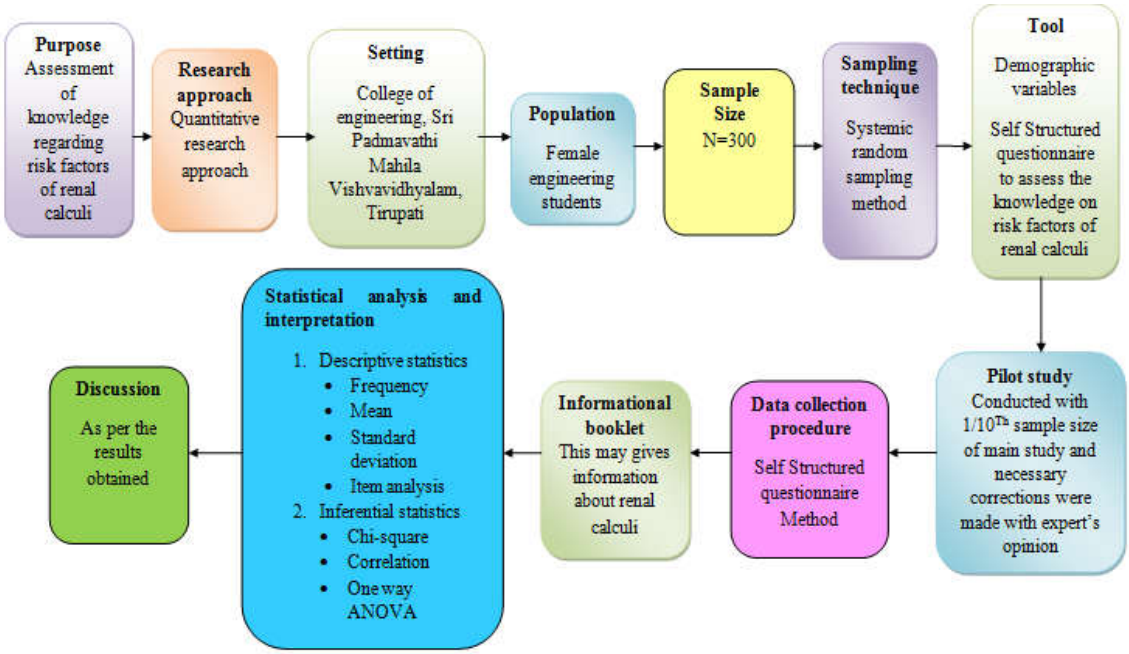

FIG 2: SCHEMATIC REPRESENTATION OF DESCRIPTIVE RESEARCH DESIGN

Table 1. Frequency and percentage distribution of level of knowledge on risk factors of renal calculi among female engineering students

n=300

S.No.	Level of Knowledge	Frequency (f)	Percentage (%)
1.	Inadequate	227	75.70
2.	Moderate	39	13.00
3.	Adequate	34	11.30

Table 2. Mean and standard deviation for level of knowledge on risk factors of renal calculi among female students

n = 300

Variables	Mean	Standard deviation
General information	7.31	1.827
Risk factors	9.93	4.306
Total	17.24	5.465

Conclusion

Renal calculi is an challenging clinical problem. Diet and lifestyle plays an important role in the pathogenesis of renal stones. In the present study, most of the students are having inadequate knowledge regarding risk factors of renal calculi. So the nurses should give more emphasis on training to identify the risk group and to educate the preventive strategies. Evidence based practice, nursing research and panel discussions can help student to improve their knowledge and leads to innovations in prevention of renal calculi.

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