Female Older Adults Awareness Regarding Recurrent Lower Urinary Tract Infections

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Abstract

Background: Urinary tract infections are more common in females and predominantly based on their unhealthy reported practices in their day to day lives. Female older adults   are vulnerable to Urinary tract infections because of anatomical structure. **Design:** A descriptive research design was utilized for conduction of this study. **Setting:** The study was conducted in urology out-patient clinics at National Institute of Urology and Nephrology. **Study subjects:** A purposive sample of 195 female older adults in the previous mentioned setting. **Data collection tool: Interviewing questionnaire**, it was included five parts concerned with, 1) socio-demographic characteristics, 2) Health history of female older adults regarding recurrent lower urinary tract infections , 3) Female older adults ' knowledge, 4) Female older adults ' self -care reported practice regarding recurrent lower urinary tract infections, 5) Health problems for female older adults with recurrent lower urinary tract infections. **Results**: Findings of the present study showed that 60.6% of the FOAs had unsatisfactory level of knowledge, 76.4% of the female older adults had inadequate level of practice regarding prevention of recurrent lower urinary tract infections. 71.2% of them were not complaining from health problems related to urinary tract infections. **Conclusion:** There was a significant statistical relation between total level of knowledge and their educational level, and a statically significant relation between total level of practice among the female older adults and their monthly income and residence. While, there was a significant statistical positive correlation between total level of practice and total level of knowledge among the studied female older adults. **Recommendation**: Further research on a larger probability sample is recommended to achieve the generalized capability and wider employment of self-care reported practices

Keywords: Recurrent lower urinary tract infections, Female Older Adults

Introduction

Urinary tract infections (UTIs) are one of the most common infections worldwide, Globally, 404.61 million cases, 236,790 deaths, and 520,200 disability-adjusted life years of UTIs were estimated in 2019 the data from the Global Burden of Disease Study. (**Jang. et al., 2022**)

Urinary tract infections (UTIs) are more common in females and predominantly based on their unhealthy reported practices in their day to day lives(**Jelly, et al., 2022**)

Lower Urinary Tract Infection may predominate at the bladder (cystitis) or urethra (urethritis). Urinary Tract Infections criteria's are dysuria, urinary frequency, urinary urgency, supra-pubic tenderness and costo-vertebral angle pain or tenderness with no more than two specific of organisms identified (**National Healthcare Safety Network**, 2022).

Recurrent Urinary Tract Infections (rUTIs) are defined as two episodes of acute bacterial cystitis, along with associated symptoms within the last six months or three episodes within the last year. r UTIs are much more common in the female population. (**Gupta, et al., 2023**).

The most common complications of recurrent urinary tract infection are urolithiasis, stricture, Clostridium difficile colitis, renal failure, and sepsis (**Metwally, et al., 2021**).

Female Older Adults (FOAs) is at higher risk for developing UTIs, due to a range of

intrinsic and extrinsic risk factors, and they often delay seeking treatment (**Gajdács, et al., 2021**).

Awareness is the state or ability to perceive, feel, or be conscious of something. It involves being knowledgeable or informed about a particular issue or topic. Awareness can be related to a wide range of areas, including physical health, mental health, social issues, environmental concerns, and more (**Ali**, **et al., 2020**).

Community health nurse working as gerontological nurses have greater responsibility and play an important role in older adults ' assessment to early identify the risks for UTI and prevent negative consequences. They are responsible for monitoring the compliance and responsiveness to prescribed management modalities. Evaluate the effectiveness of the education nursing aspect, taking into account physiological and psychological changes that may interfere with the teaching process, and attempting to overcome such barriers (**Mohamed et al., 2021**

Significance of the Study:

Egypt is undergoing a demographic transition toward an aging society. The expected percentage of elderly population may reach 10.9% in 2026, and 12% by 2030. (**Ministry of Planning and Economic Development. 2021**) Life expectancy is projected to reach 73 years for female older adults . As the population ages and the old-age dependency ratio increases, economics, health resources and community welfare may be stretched (**Fahmei, et al., 2020**)

UTIs are the second-most common infections, especially among females accounting approximately 8.3 million hospital visit every year leading to serious health issues.(**Jelly et al., 2022**) In Egypt, the prevalence of urinary tract infection among older adults average of 75% (**Mohamed, et al., 2020**).

Aim of the study

Assess female older adults awareness regarding recurrent lower urinary tract infections through the following objectives:

• Assessing female older adults knowledge about recurrent lower urinary tract infection.

• Assessing female older adults Reported practices related to Self -Care toward recurrent lower urinary tract infection.

Research Questions:-

1.What is female older adults knowledge about recurrent lower urinary tract Infection?

2.What is female older adults self-care reported practices regarding recurrent lower urinary tract infection?

3.Is there a relation between female older adults socio-demographic characteristics and their self -care reported knowledge about recurrent lower urinary tract infection?

4.Is there a relation between female older adults knowledge and their Reported practices related to Self -Care regarding recurrent lower urinary tract infection?

Subjects and Methods:

Research design:

A descriptive design was utilized to achieve the aim of this study.

Sitting:-

This study was conducted at urology out-patient clinics at National Institute of Urology and Nephrology which affiliated to General Organization of Training Hospitals and Institutes at Ministry of Health. That is located in El Mattaria, Cairo Governorate. These urology outpatient clinics were specialized of management of all types of urological diseases and provided with specialized physicians and nurses in this field that cover a large sector of patients across Cairo, Giza, El-Qualubia, Fayoum Governorates, and works from 8 Am to 2 Pm, 6 days per week except the public holidays.

Subjects:

Sample type

A purposive sample was utilized to achieve the aim of this study.

Sample Size:

A total of 195 Female older adults enrolled at the above mentioned setting were involved in this study.

Data collection tools:

One tool was used:-

Structure interviewing Questionnaire: It included the following parts

Part (1): Socio-demographic characteristics of female older adults . Including (marital status, educational level, occupation, monthly income, residence, number of rooms to determine of household crowded index)

Part (II): Health history of female older adults regarding recurrent lower urinary infection. Included (previous complaints, previous urological surgeries, Previous catheterization, previous hospitalization, previous family history of LUTI, diagnosis, current complain, Other infections, current Medications). Under two items

o Past health history related to recurrent LUTI

o Present health history related to LUTI

Part (III): Female Older Adults Knowledge Assessment Questionnaire regarding recurrent lower urinary tract. Include (assess female older adult' knowledge about lower urinary tract infection and source of information e.g. components of lower urinary tract system meaning, causes, signs and symptoms, preventive measures, preventive reported practices and complications and duration of antibiotic for treatment) under two items:

o Knowledge about recurrent LUTI.

o Knowledge about risk factors of LUTI

In addition to a source of information is **Scoring system of knowledge**: The scores for the responses of each statement were scored as follows: correct = 1 and incorrect = 0. The total scores of knowledge were summed up and converted into a percentage score. The total is 15 degree which equal 100% and categorized as following:-

• Satisfactory knowledge if total score ≥ 50%. (8-15 degree)
• Unsatisfactory knowledge if total score<50%.(< 8 degree)

Part IV: Female Older Adults Reported practices related to self -care

It consisted of 33 items under six items:

o Personal hygiene

o Regular and frequent urination

o Nutritional reported practices

o Daily exercise and activities

o Maintain normal body weight

o Following treatment regimen.

❖ **Scoring system of Reported practices related to Self -Care**

The scores for the responses of each statement were scored as follows: Never = 0, sometimes=1 and always = 2. The total scores of practice were summed up and converted into a percentage score. The total scored 66 degree which equal 100% and categorized as following:-

• **Adequate reported practices** if total score ≥ 60%. (40-66 degree)

• **Inadequate reported practices** if total score < 60%. (< 40 degree).

Part V: Health Problems of Female Older Adults (FOAs) with Recurrent Lower

Urinary   Tract   Infection.   (r LUTI).Include(Kidney stone, bladder stone, ureter stone, urine incontinence, dysuria, vesicoureteral reflux, urinary retention, cystitis, nephritis, inflammation of preineal area, Vulvovaginal atrophy, increased post-void residual urine volume, over active bladder)

Scoring system:- the total health problem included 14 statements each item was scored one for yes and zero for no. the total score were summed up and converted into a percentage score. The total scored 14 degree which equal 100% and categorized as following:-

• **Complaining** if total score **≥ 50%.** (7-14 degree)

• **Not complaining** if total score **< 50%.** (< 7 degree).

II-Operational design:

A- The preparatory phase:

It included reviewing the recent related literature and theoretical knowledge of various aspects of the study using books, articles, internet and periodicals magazines. This was necessary for the investigator to get acquainted with, and oriented about aspects of the research problems, as well as to assist in development and modify the of data collection tools

B- Validity& Reliability

Validity

It was tested by 5 experts from Community Health Nursing, Faculty of Nursing Ain Shams University to review the tools for clarity, relevance, comprehensiveness, understanding and applicability.

Reliability:

Reliability is the consistency of measurement tool. The degree to.

The Cronbach's alpha model which is a model of internal consistency was used in the

analysis of female' older adults knowledge, reported practices and health problems

  ▪ knowledge = 0.86.

  ▪ reported practices =0.80.

  ▪ health problems=0.78

Statistical equation of Cronbach's alpha reliability coefficient normally ranges between 0 and 1.

C-Pilot study:

A pilot study was carried out on 10% (20 participants) of the sample to test clarity A pilot study was carried out on 10% (20 participants) of the sample to test clarity, applicability of the data collection tools and time needed. The subjects who were included in the pilot study were included in the study sample because no modification was done after conducting the pilot study.

D-Field work

Data collection started and completed within four months from the beginning of December (2022) until the end of March (2023). The investigator explained the aim of the study to all of participants prior to the data collection and gets their acceptance. Data collection was done at the previous mentioned setting two days per week (Saturday and Tuesday) by the investigator in the morning shift between 8.00 AM to 12.00 AM. Each participant took about 30-45 minutes for interviewing and completing the questionnaires.

The investigator met FOAs at triage room .The investigator held the meeting by introduce her-self and briefly explained the nature and the purpose of the study. They were informed that their participated was voluntary and they had the right to withdraw at any time without giving any reason. Written approval of them to share in this study was achieved. An interviewing questionnaire was distributed to each FOA to assess their socio-demographic characteristics, knowledge, reported practices, health problems

regarding rLUTIs. The questionnaire took about 30-40 minutes to be completed.

III-Administrative Design:

Approval to carry out this study was obtained by Formal letter from the Dean of the Faculty of Nursing, Ain Shams University to Dean of National Institute of Urology and Nephrology Institute that affiliated to General Organization for Training Hospitals and Institutes which affiliated to Ministry of Health

E- Ethical Considerations:

Approval prior to study conduction was obtained from the Scientific Research Ethical Committee affiliated to Faculty of Nursing Ain Shams University before starting the study. With ethical code: 24.12.461 The investigator explained and clarified the study aim and conducting way to the participants before taking the consent of participation. The investigator assured maintaining anonymity and confidentiality of data of subjects included in the study. The participants were informed about their right to withdraw from the study at any time without giving any reason.

IV -Statistical design:

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version 26 and Microsoft Excel version 2010. Quantitative data were presented as mean and standard deviation (SD) while qualitative data were expressed as frequency and percentage. Chi-square test used as a test of significance to test relation between categorical variables as the variables were not normally distributed.

The results

Table (1) shows that, 64.6% of the female older adult were in age group 60-<75 years with mean age 72.07±6.03 years and 65.6% of them were married. Also, 41.0% of them don't read/write, 53.3% of them reported insufficient monthly income while 57.0% of female older

adults had crowded houses Also; 19.5% of them had overcrowded index.

Table (2) shows that, 39.4%, and 37.9 % respectively of the FOAs had adequate level of reported practices regarding personal hygiene and regular and frequent urination. Also 48.2%, 41.0%, 42.5% and33.8% respectively of them had adequate level of reported practices regarding nutritional reported practices s, daily exercise and activities, maintain normal body weight and following treatment regimen.

Table (3) shows that, there was a statically significant relation between total level of knowledge among the female older adults and their educational level at P-Value =0.027.

While, there was no significant statically relation between total level of knowledge among the female older adults and their age, marital status, occupation, monthly income and residence at P-value =0.338, 0.538, 0.254

Table (4) shows that, there was a statically significant relation between total level of practice among female older adults and their monthly income and residence at P-Value =0.045 and 0.017 respectively. While, there was no significant statically relation between total level of practice among female older adults and their age, marital status, educational level and occupation, at P-value =0.852, 0.816 and 0.613 respectively.

Table (5) reveals that, there was a significant statistical positive correlation between total level of practice and total level of knowledge among the studied FOAs at P-value= 0.011, 0.754 and 0.073 respectively.

Figure (1) illustrates that, 39.4% of female older adults had satisfactory level of knowledge regarding recurrent lower urinary tract infection**.** While, 60.6% of the FOAs had unsatisfactory level of knowledge regarding recurrent lower urinary tract infection

Figure (2) illustrates that, 76.4% of the female older adults had inadequate level of practice regarding prevention of rLUTI. While,

23.6% of them had adequate level of practice regarding prevention of rLUTI..

Figure (3) illustrates that, 71.2% of the FOAs were not complaining from health

problems. While, 28.8% of them were complaining from health problems

Table (1): Distribution of Socio-demographic characteristics of the female older adults (n=195).

Socio-demographic Characteristics	Items	N	
Age (in years)	60-<75	126	64.6
	75-<85	53	%27.2
	≥85	16	8.2
	Mean ± SD	72.07± 6.03 years	
Marital status	Single	3	1.6
	Married	128	65.6
	Divorced	6	3.1
	Widow	58	29.7
Educational level	Don't read/write	80	41.0
	Elementary	67	34.4
	Secondary	26	13.3
	University	22	11.3
Occupation	Occupied	74	37.9
	Housewife	121	62.1
Adequacy of Monthly income	Insufficient	104	53.3
	Sufficient	91	46.7
Residence	Rural	149	76.5
	Urban	46	23.5
Crowding index	Under crowded ≤ 1	46	23.5
	Crowded >1.0 ≤ 1.5	111	57.0
	Over crowded > 1.5	38	19.5

Table (2): Distribution of the female older adults according to total level of reported practices items about of recurrent lower urinary tract infection (n=195).

Items of reported practices	Adequate (≥ 60%)		Inadequate (<60%)	
	N	%	N	%
Personal Hygiene	77	**39.4**	118	60.6
Regular and Frequent Urination	74	**37.9**	121	62.1
Nutritional Practces s	94	**48.2**	101	51.8
Daily Exercise and Activities	80	41.0	115	58.9
Maintain Normal Body Weight	82	**42.5**	113	57.5
Following treatment regimen	66	**33.8**	129	**66.2**

Table (3): Relation between the female older adults Scio-demographic characteristics and their total level of Knowledge (n=195).

Scio-demographic characteristics		Total level of Knowledge				X2	P-value
		Unsatisfactory		Satisfactory			
		N	%	N	%		
Age	60-<75	77	39.5	49	25.1	2.169	0.338 (NS)
	75-<85	29	14.9	24	12.3		
	≥85	12	6.2	4	2.1		
Marital status	Single	2	1.0	1	0.5	2.170	0.538 (NS)
	Married	77	39.5	51	26.2		
	Divorced	2	1.0	4	2.1		
	Widow	37	19.0	21	10.2		
Educational level	Don't read/write	44	22.6	36	18.5	3.451	0.027* (S)
	Elementary	46	23.6	21	10.8		
	Secondary	14	7.2	12	6.2		
	University	14	7.2	8	4.1		
Occupation	Occupied	41	21.0	33	16.9	1.302	0.254 (NS)
	Housewife	77	39.5	44	22.6		
Monthly income	Insufficient	64	32.8	40	20.5	0.098	0.754 (NS)
	Sufficient	54	27.7	37	19.0		
Residence	Rural	91	46.7	58	29.7	0.083	0.073 (S)
	Urban	27	13.8	19	9.7		

X^2= Chi Square Test * P-value ≤ 0.05 Significant (S). P-value > 0.05= Non-Significant (NS).

Table (4): Relation between Scio demographic characteristics and reported practices level of the female older adults (n=195).

Scio Demographic characteristics		Total level of Reported practices				X2	P-value
		Adequate		Inadequate			
		N	%	N	%		
Age (in years)	60-<75	29	14.9	97	50.0	0.548	0.760 (NS)
	75-<85	12	6.2	40	20.6		
	≥85	5	2.6	11	5.7		
Marital status	Single	1	0.5	2	1.0	0.788	0.852 (NS)
	Married	31	16.0	96	49.5		
	Divorced	2	1.0	4	2.1		
	Widow	12	6.2	46	23.7		
Educational level	Don't read/write	17	8.8	62	32.0	0.939	0.816 (NS)
	Elementary	16	8.2	51	26.3		
	Secondary	8	4.1	18	9.3		
	University	5	2.6	17	8.8		
Occupation	Occupied	19	9.8	55	28.4	0.255	0.613 (NS)
	Housewife	27	13.9	93	47.9		
Monthly income	Insufficient	25	12.9	78	40.2	0.138	0.045* (S)
	Sufficient	21	10.8	70	36.1		
Residence	Rural	35	18.0	113	58.2	0.641	0.017* (S)
	Urban	11	5.7	35	18.0		

Table (5): Correlation between total level of knowledge and total level of reported practices among the studied FOAs:

Variables	Total level of knowledge	
	r	P-value
Total level of reported practices	0.891	0.011* (S)

* P-value ≤ 0.05 Sign

Figure (1): Distribution of the Female older adults according to total level of knowledge about recurrent lower urinary tract infection (n=195).
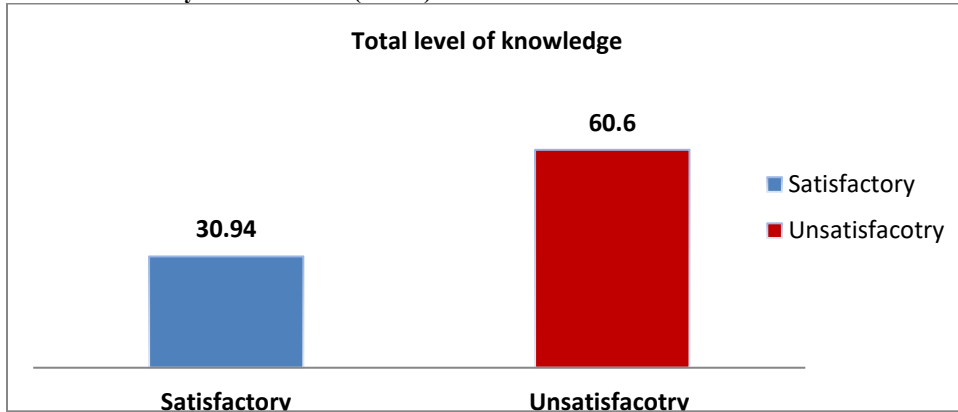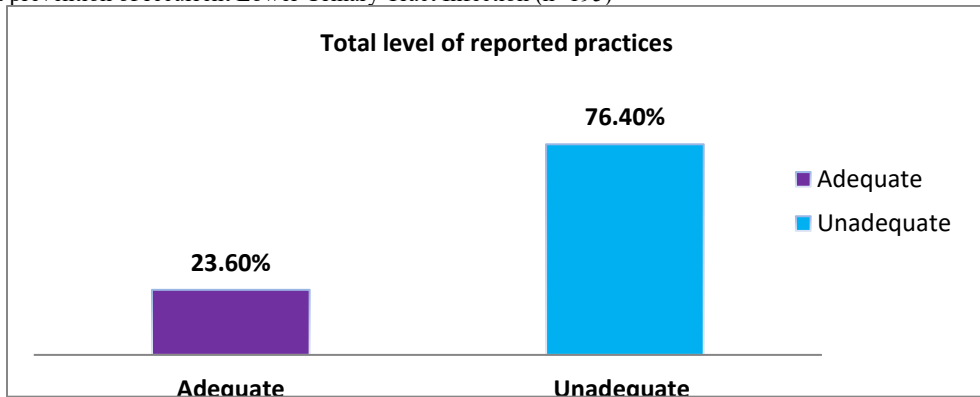

Total level of knowledge

- Satisfactory: 30.94
- Unsatisfacotry: 60.6

Figure (2): Distribution of the female older adults according to their total level of reported practices s about prevention of recurrent Lower Urinary Tract Infection (n=195)
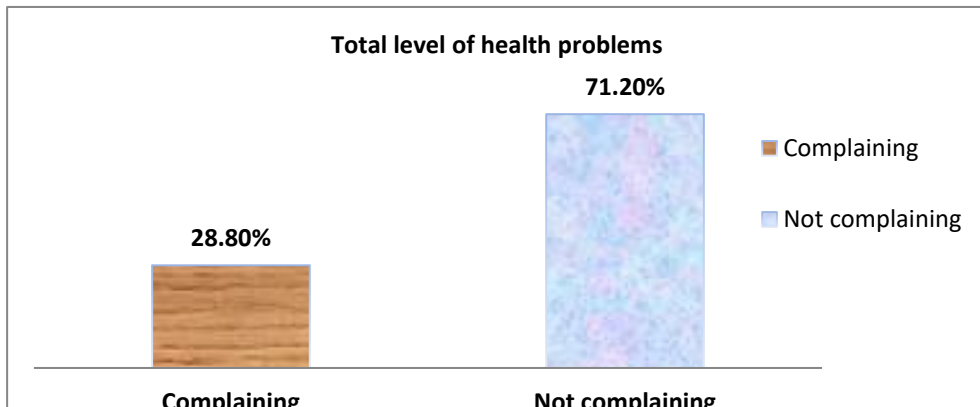

Total level of reported practices

- Adequate: 23.60%
- Unadequate: 76.40%

Figure (3): Distribution of the female older adults according to their total level of health problems related to RLUTI (n=195).

Total level of health problems

- Complaining: 28.80%
- Not complaining: 71.20%

Discussion

Urinary tract infections UTIs initiated by the existence of bacteria in the genitourinary tract, UTIs are a common disorder affecting millions of people annually and they are the second most common type of infection in humans. UTIs are reported at all age groups, but women showed higher risk than men, due to short urethra, changes related genitourinary tract, easy contamination of urinary tract with faecal flora (**Al Shahrani, et al., 2022**)

The current study result showed that, less than two thirds of female older adult were in age group 60-<75 years with mean age 72.07±6.03 years and   less than two thirds of them were married and less than half of the female weren't read/write. (Table1). This result was agreed with (**Thangrom et al., (2023)**. who applied study entitled " Prevalence and Related Factors of Lower Urinary Tract Infection in Frail Older Adults Undergoing Major Non-cardiac Surgery" in Thailand among 220 participants and reported the majority were female (62.3%) with a mean age of 72.95 years   SD = 72.53; range 60–94 years , married 72.7% , while disagree with him in completed primary education 65.5% .

Also, the present study result showed that more than half of studied female reported insufficient monthly income and had crowded houses, This result was disagreed with **Baker, & Elhossiny, (2020)** who conducted study entitled "Effect of Health Education Program Based on Health Belief Model on Prognosis of Urinary Tract Infection among Women" in Egypt among 90 women and found that 42.2% of the studied women had insufficient monthly income.

The present study result showed that more than three quarters of them were from rural areas **and** more than half of them were housewife **(Table1).**

This study contrasted with **Mititelu et al., (2024)** who applied study entitled "Incidence of Urinary Infections and Behavioral Risk Factors" in Romania among 1103 participants and reported that 79.15% of the studied subjects were from Urban area and the majority of them were working

According to total level of knowledge about recurrent lower urinary tract infection, the present study result illustratesd that**,** less than half of the FOAs had satisfactory level of knowledge regarding recurrent lower urinary tract infection**.** While, more than half of them had unsatisfactory level of knowledge regarding recurrent lower urinary tract infection **(Figure 1)**.

This result was disagreed with **Mangai, et al., (2019)** who conducted study entitled "Assessment of knowledge and prevention reported practices s of urinary tract infection (UTI) among female " among 185 respondents in Nigeria and found that most of (82.2%) of the respondents had knowledge about urinary tract infection. And contrasted with **Yakout, et al., (2023)** who showed that 61% of the studied subjects had fair level of knowledge. And **Alshahrani, et al., (2022)** who showed that, 65.5% women had good knowledge regarding UTI.

According to total level of reported practices about prevention of r-LUTI the current study result illustrates that more than three quarters of the FOAs had inadequate level of reported practices regarding prevention of r-LUTI. While, less than one quarter of them had adequate level of reported practices regarding prevention of r-LUTI **(Figure 2).**

This result was supported with **Metwally, et al., (2021)** who showed that majority of the control and the study groups had unsatisfied total reported practices related to self-care levels Furthermore, a previous study conducted by **Mahmoud, et al., (2023**) entitled "Self-Care Reported practices Regarding Prevention of Urinary Tract Infection" in Egypt among 247 participants and reported that 62.8% of the studied participants had inadequate total reported practices s regarding prevention of UTI. And in the same line with **Aly et al., (2022)** in Egypt and showed that 71, 3% of studied participants had unsatisfactory self- care reported practices regarding prevention of urinart Tract Infection.

As regard to total level of complaining from health problems related to recurrent lower urinary tract infection, the current study result

illustratesd that, less than three quarters of the FOAs were not complaining from health problems. While, more than one quarter of them were complaining from health problems **(Figure 3).**

This result was supported with **Pat, et al., (2020)** who applied study in Netherlands among 35 participants entitled "Assessment and treatment of recurrent urinary tract infections in women: development of a questionnaire based on a qualitative study of patient expectations in secondary care" and showed that the studied women were complaining from health problems related to recurrent lower urinary tract infection.

This result may be due to women experiences during previous urinary tract infection, women were had experience about how to deal and manage this infection.

Concerning to relation between Scio-demographic characteristics and their total level of Knowledge level of the FOAs, the current study result showed that there was a statically significant relation between total level of knowledge among the FOAs and their educational level and their residence. While, there was insignificant statically relation between total level of knowledge among the female older adults and their age, marital status, occupation and monthly income **(Table 3)**

This result was supported with **Abd Elfatah et al., (2021)** who applied study entitled " Knowledge and attitudes of women regarding urinary tract infection " in Egypt among 220 participant and reported that there were a highly statistically significance relation between the total knowledge score of the studied women and educational level, while, there was insignificant between knowledge level and occupation, monthly income and residence .

This result also in accordance with **Almaghlouth et al., (2023)** who applied study among 445 participants in Saudi Arabia entitled " Awareness, Knowledge, and Attitude Towards Urinary Tract Infections: An Appraisal From Saudi Arabia" and found that there was significant associations between awareness,

knowledge, and socio-demographic characteristics.

In the relation between socio-demographic characteristics and reported practices level of the female older adults the current study result showed that, there was a statically significant relation between total level of reported practices among the female older adults and their monthly income and residence. While, there was no significant statically relation between total level of reported practices among the female older adults and their age, marital status, educational level and occupation **(Table4)**.

This result was disagreed with **Al-shahrani, et al., (2022)** who showed that there was a statically significant relation between total level of reported practices regarding urinary tract infection among the female older adults and their age, marital status, educational level and residence while no significant with monthly income.

In the correlation between total level of knowledge and total level of reported practices among the FOAs, the current study result revealed that there was a significant statistical positive correlation between total level of reported practices and total level of knowledge among the FOAs **(Table 5)**.

This result was in the same line with **Mohamed et al., (2020)** who applied study in Egypt among 68 participants entitled " Effect of An Educational Intervention on Women's Knowledge and Self-Care Reported practices s Regarding Urinary Tract Infection" and reported that there was a highly significant positive correlation was illustratesd between studied women's total knowledge and total reported practices scores

Conclusion

More than one third of female older adults had satisfactory level of knowledge regarding recurrent lower urinary tract infection. And more than three quarters of the FOAs had inadequate level of reported practices regarding prevention of rLUTI. Additionally, there was a statically

significant relationship between total level of knowledge among the FOAs and their educational level.

There was a statically significant relation between total level of reported practices among the female older adults and their monthly income and residence.. Moreover, there was a significant statistical positive correlation between total level of reported practices and total level of knowledge among the studied FOAs.

Recommendation

✓ Implementing continuous self-care reported practices health education programs regarding urinary tract infection in outpatient clinics and the urology departments..

✓ Periodic screening and follow-up for female older adults for detection of accompanied health problems.

✓ Further research on a larger probability sample is recommended to achieve the generalized capability and wider employment of self-care reported practices s.

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