

Knowledge and Habitual practice Regarding Prevention of Genito-urinary Tract Infection among Adolescent Nursing Girls Students

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Abstract

Background: Urogenital Tract Infection (UGTI) is very common among females in all age groups. During adolescence, hormonal changes favor vaginal colonization by nephritogenic strains of bacteria, which can migrate to the periurethral area and cause UTI. It is associated with poor self-esteem and impaired quality of life. **The aim of the study** was to assess the level of knowledge and habitual practice regarding prevention of genito-urinary tract infection among adolescent nursing girls students. **Research Design:** A descriptive research design was utilized. **Subject:** Convenient samples composed of (81 nursing students) were enrolled during the academic year 2022 /2023. **Tools of data collection:** consisted of two tools: the interviewing assessment tool, which encompassed two main parts: (student's socio-demographic characteristics and student's knowledge) and the habitual practice assessment tool regarding prevention of genito-urinary tract infection. **Results:** This study revealed that 63% of the studied sample had poor knowledge regarding prevention of GUTIs, 59.3% of the studied sample had unsatisfactory habitual practice regarding prevention of GUTIs. **Conclusion:** Poor knowledge and unsatisfactory habitual practice regarding prevention of GUTIs were widespread, and GUTIs was an existing problem among the study population. **Recommendations:** Designing and applying of an educational program to increase awareness among female adolescent regarding prevention of GUTI, Using appropriate educational strategies to increase students' health awareness and the significance of adopting a healthful life style.

Keywords: Adolescent girls, Genito-urinary Tract Infection, Habitual practice, Nursing Student, Prevention.

Introduction:

Adolescence in female adolescents is acknowledged as a unique stage of life that calls for particular care. Due to a number of habits that might occasionally have negative effects, this stage of life is known as the most health-turbulent in life. Although its physical, psychological, or cultural expressions may start earlier and end later, it is generally associated with the teenage years. For instance, puberty now usually starts during pre-adolescence, especially in females. It is a transitional stage of physical and psychological development that occurs during the period from puberty to adulthood. (Elwakeel et al.,2022)

Nursing students would be the primary caregivers who can undertake the role of health educator through proper approaches in identifying and resolving issues. Adolescent girls and women can benefit from education from trainers and nurses with vital knowledge and skills to ensure good hygiene practices. (Sequera et al, 2021)

Urinary tract infection (UTI) refers to a broad category of infectious diseases that can affect any part of the urinary tract, from the kidneys to the urethra. One of the most prevalent illnesses is a urinary tract infection (UTI), with 50% to 60% of women reportedly experiencing it at least once in their lives. Bacteria that colonize the urethra or periurethral region typically migrate into the bladder and trigger an inflammatory response. (Al Lawati, et al ,2024).

Females are more likely to get genitourinary infections, because of their shorter urethras and closer closeness to the rectum, which facilitates bacterial entry into the genitourinary tract which affect the bladder, urethra, vagina, and uterus. It has been identified that the primary risk

factor for these diseases is poor hygiene. One billion women worldwide are thought to experience non-sexually transmitted urogenital infections (UTIs) each year, including bacterial, yeast, and urinary tract infections (UTIs).(Sayed et al ,2022)

There were evident connections between GUTI and inadequate menstrual hygiene. Because the cervix opens during menstruation, providing an opportunity for microorganisms to enter the uterus and pelvic cavity, there was an increased risk of infections. According to science, during this time the vagina's pH decreases, which favors the growth of yeast infections like candidiasis (Nofal et al, 2020). These vaginal microbial variations may be caused by a range of menstrual-related changes, such as the presence of blood, varying cleanliness practices, and fluctuations in estrogen and progesterin levels. (Graham et al, 2021)

The reproductive and urinary systems are intimately related, and illnesses in one may migrate quickly to the other. Reproductive organs can be readily infected by infectious organisms transmitted from the urinary tract and anus. Previous research shown that vaginal colonization with Uropathogenic Escherichia Coli (UPEC) strains is more common in females with recurrent UTIs. Urinary tract infections (UTIs) are thought to be mostly caused by the (UPEC) strains globally. The incidence of (UPEC) strains was highest among infertile women with a history of UTIs. High vaginal prevalence of virulent and resistant (UPEC) strains in infertile women with a history of UTIs may indicate a significant function for these pathogens as causes of female infertility. (Dehkordi et al., 2020)

The symptoms that patients encounter include burning or pain when urinating, frequent urination, feeling the

urge to urinate even though their bladder is empty, bloody urine, pressure or cramping in the lower abdomen or groin area, fever, irritation and itching in the vulva and vagina, vulva redness and swelling, vaginal rash, thick, white, odorless vaginal discharge, and watery vaginal discharge. (Sayed et al ,2022) Infection of the genitourinary tract It can result in severe complications if left untreated, such as irreversible kidney damage and sepsis, a widespread infection that may be fatal. (Said & Elbana , 2019)

Nurses play a vital role in preventing teenage urinary tract infections as part of the healthcare team by teaching and modeling self-care techniques. (Thakur et al,2022) Health education regarding preventive measures can influence their vulnerability to the illness. Appropriate healthy conduct can help avoid GUTI. Basic, hygienic restrooms should be available in schools and other public areas. (Nofal et al , 2020)

Hygiene is a series of practices performed by an individual in day-to-day life to promote a healthy lifestyle. A crucial component of hygienic practices is keeping the human body clean. Adolescent girls should prioritize hygiene as it has an impact on their reproductive health. One of the most crucial aspects of hygiene practices is personal hygiene for women. The risk of contracting diseases such urinary tract infections (UTI), candidiasis, and reproductive tract infections rises when feminine hygiene is neglected. Because of variations in the reproductive tract's anatomical anatomy, UTIs are a common illness among females. Maintaining the health of reproductive system structures needs to be the top concern for female hygiene. (Alva et al ,2022)

Significance of the study

Reproductive tract infection (RTI) has a huge global illness burden and is one of the main global health concerns. Although official statistics for Egypt are unavailable, an epidemiologic study carried out in upper Egypt found that the overall prevalence of RTIS was as high as 52.81%, with no statistically significant difference between urban and rural areas. It was estimated that 340 million people were infected with curable RTIS, and that approximately one million new cases of such infection occur each day. Not only are RTIS highly prevalent, but they are also often undiagnosed and untreated, leading to reproductive morbidity and mortality. For these reasons, they need attention. (Ibrahim et al ,2022)

Adolescent girls are more likely to get UTIs if they have a disordered voiding pattern and inadequate hygiene. Adolescent girls may get silent urinary tract infections (UTTIs) as a result of drinking too little water and passing pee infrequently. (Sequera et al , 2021) Insufficient understanding of menstrual hygiene can result in unsanitary behavior, which raises the risk of various health consequences, school abandonment, poor academic achievement, and ultimately an unsatisfactory standard of life. (Belayneh & Mekuriaw,2019)

In females, urogenital infections are common, although they have received minimal attention. A third of all females are predicted to encounter U.I. at some point in their lives. Between the ages of 18 and 50, it is quite prevalent in the general population of females. Between 22 and 35% of female U.I. cases in Egypt in 2019 and 53.5% in 2020, these cases were primarily caused by bacteria. With 80–90% of community-acquired infections and 30–50% of nosocomial infections, E. Coli is the most prevalent bacteria. (Sayed et al 2022)

Reproductive tract infections in female adolescents have long been referred to as "a silent" epidemic, leading to

global maternal mortality and gynecological morbidity. Sexually transmitted diseases (STIs) and reproductive tract infections (RTIs) in adolescents are serious public health issues in both industrialized and developing nations, although prevalence rates appear to be much greater in less wealthy countries where access to STI treatment is more limited. For millions of men, women, and children worldwide, they are leading causes of acute disease, infertility, long-term disability, and mortality, with grave medical and psychological consequences. (Ibrahim et al ,2022)

Aim of the study:

To assess the level of knowledge and habitual practice regarding prevention of genito-urinary tract infection among adolescent nursing girls students.

Research question:

1. What is the level of knowledge regarding genito-urinary tract infection prevention among adolescent girls students at Malloway secondary technical nursing school for girls?
2. What are habitual practice regarding prevention of genito- urinary tract infection among students at Malloway secondary technical nursing school ?
3. Is there a relationships between knowledge and habitual practice regarding prevention of genito-urinary tract infection among adolescent girls and selected socio-demographic variable?

Subjects and Methods:

Research Design:

Descriptive research design was utilized to achieve the aim of this study

Setting:

This study was conducted at Malloway Secondary Technical Nursing School for Girls, which was selected randomly among different nursing schools in Minia Governorate.

Sample :

A Convenient sample composed of all nursing students were enrolled during the academic year 2022 /2023 (81 students) included in the current study based on inclusion and exclusion criteria.

Inclusion Criteria:

- Adolescent girls who are willing to participate.

Exclusion criteria:

- Students with current urogenital tract infection or any other renal disease .
- Students with diabetes mellitus or an immune-compromised state.
- Married students

Tools for data collection

To achieve the goal of the study, data was collected through two tools designed by the researcher after reviewing of related literature.

Tool I :

A self-administered questionnaire it was consists of two parts:

Part (one):

To assess socio-demographic characteristics, it includes student age, grade , the mother education, mother occupation, type of family, residence and source of knowledge about genito-urinary tract infection.

Part (two):

A knowledge assessment sheet it was developed by the researcher after reviewing relevant literature (**Fehintola et al ,2017**) and (**Suba, 2019**) to assess the knowledge level regarding prevention of genito-urinary tract infection among adolescent girls; This part included (29) multiple-choice questions for assessing students' knowledge regarding genito-urinary tract infection (GUTI), such as the anatomical structure of the urinary and genital systems, physiological functions of renal system organs and genital system organs, normal vaginal discharge characteristics, issues related to genito-urinary tract infection, such as predisposing factors, causes, risk factors, signs, symptoms, complications, preventive measures, etc.

Scoring system of student knowledge level :

The student's answers related to level of knowledge were scored and calculated. According to the answers of the students' responses, they were evaluated using the model key answer sheet that had been prepared previously by the researcher. The student's score of knowledge level regarding genito-urinary tract prevention was classified as follows:

Each correct answer was given a score of 'one' and the wrong answer or don't know a score of 'zero," respectively. For each area of knowledge, the scores of the items were summed up and the total score = 29 divided by the number of items, giving a mean score for each area. Poor level of knowledge scored < 50% (< 15 score); average level of knowledge $\geq 50\%$: $\leq 75\%$ (15: 23 score); and good level of knowledge was considered if the percent score is $\geq 75\%$ (≥ 23 score)

Tool II:

A Reported habitual practice assessment sheet it was developed by the researcher after reviewing relevant literature (**Sequera, et al 2021**) , (**Mahmoud et al , 2023**) and (**Mohamed, 2018**) concerned with the students habitual practice regarding prevention of genito-urinary tract infection. It included (25 multiple-choice questions) for assessing habitual practice regarding hand washing, showering, materials used for showering, cleaning the genital area after elimination, the direction of cleaning the genital area, dryness of the genital area, materials of underwear, types of towels used during menstruation, frequency of changing towels, bathing, materials for cleaning the perineal area, frequency of changing towels, etc.

The scoring system:

The student's answers related to practice were scored and calculated. According to the answers of the students' responses, they were evaluated using the model key answer sheet that had been prepared previously by the researcher. The student's scoring of practice regarding genito-urinary tract infection prevention was classified as follows: Each correct answer was given a score of 'one' and the wrong answer or

don't know a score of 'zero," respectively. For each area of reported practice, the scores of the items were summed up and the total score = 25 divided by the number of items, giving a mean score for each area. Unsatisfactory habitual practice regarding genito-urinary tract infection prevention was scored at < 50% (<13 score) , and satisfactory habitual practice regarding genito-urinary tract prevention was considered if the percent score was $\geq 50\%$ (≥ 13 score) .

Validity and Reliability of tools:

The tool was tested for content validity by a jury of five experts' in the field of maternal and obstetric health nursing who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability, and ease of use. Any necessary modifications were made. The tool was tested for internal consistency by using Cronbach's alpha test. Knowledge reliability test was 0.81 and habitual practice reliability was 0.90.

Pilot Study:

A pilot study was conducted on 10% of the sample (8 students) to test the applicability of the instrument, feasibility of the tools and estimate the time required for data collection. no modification were required. The sample of the pilot study was included in the main sample size

Procedure:

- An official letter was obtained from the Dean of the Faculty of Nursing at Minia University to the head manager of Malloway Specialized Hospital and the director of Malloway Secondary Technical Nursing School for Girls, asking for permission to collect data.
- A visit was done with the head manager of Malloway Specialized Hospital and the director of Malloway Secondary Technical Nursing School for Girls to explain the objectives and aim of the study, which was helpful to gain their cooperation The researcher determined the suitable time for the students by the director of the school according to their class schedule.
- The students divided according to their grade, each grade were met one time a week each Tuesday at break time (11:00: 11:30 am), for two weeks.
- At the beginning of the interview , the researcher introduced herself to the students and explained the aim, nature of the study, and how to fulfill these questions briefly through direct personal communication that took (10- 15) minutes with the students, and oral consent was be taken to participate in the study to obtained prior for answering the questionnaire sheet. The students were allowed to ask for any explanation. The study tool was filled out by the students, and it was distributed and answered within 20 minutes.
- The researcher collected the sample over three months, from October to November 2023

Ethical considerations:

- Written initial approval was obtained from the Dean of the Faculty of Nursing and the research ethics committee of the Faculty of Nursing at Minia University.

- Before the conduction of the pilot study as well as the main study, oral consent was obtained from students that are willing to participate in the study, after explaining the nature and purpose of the study. Study subject has the right to refuse to participate or withdraw from the study without any rational at any time.
- Participants were assured that all their data was highly confidential and that anonymity was maintained.
- Each assessment sheet was coded, and the student's name did not appear on the sheet for the purpose of anonymity and confidentiality

Statistical design

With the help of descriptive statistical tests, the acquired data was tabulated, computerized, analyzed and summarized using SPSS version (IBM 28) and excel for figures. For qualitative and quantitative factors, respectively, the data were presented as frequencies, percentages and means. P-values 0.05 was accepted as the level of significance, while P values of less than or equal to 0.01 were considered highly significant. The relationship between the examined student knowledge/practice and their chosen socio-demographic factors was discovered using the Fisher exact test and the chi test

Results: Part I: Socio-demographic characteristics of the studied sample

Table (1): Distribution of the studied sample regarding to their socio- demographic data (n= 81)

Demographic data	Total (n= 81)	
	No.	%
Age /yrs		
15 years	17	21.0
16 years	25	30.8
17 years	31	38.3
18 years or more	8	9.9
Mean ± SD	16.8 ± 0.9	
Student grade		
First	31	38.3
Second	26	32.1
Third	24	29.6
Education of the mother		
Illiterate	19	23.5
Read and write	17	21.0
Primary school	4	4.9
Secondary school	36	44.4
University educated	5	6.2
Occupation of mother		
Housewife	68	84.0
Work	13	16.0
Type of family		
Nuclear family	50	61.7
Single parent family	10	12.3
Extended family	21	26.0
Residence		
Rural	72	88.9
Urban	9	11.1

Table (1): presents that, 38.3% of the studied sample aged 17 years with a mean age of (16.8 ± 0.9) ,38.3% in 1st-grade . 44.4% of their mothers were secondary school, 84.0% of their mothers were a housewife, 61.7% of the studied sample lives in a nuclear family, and 88.9% lives in rural areas

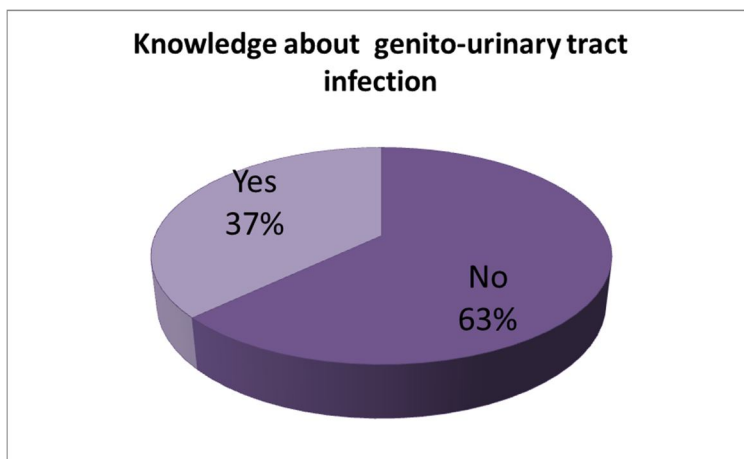


Figure (1): Distribution of the studied sample regarding previous knowledge about Genito-urinary tract infection (N = 81).

Figure (1): Shows that, 63% of students don't knew about Genito-urinary tract infection

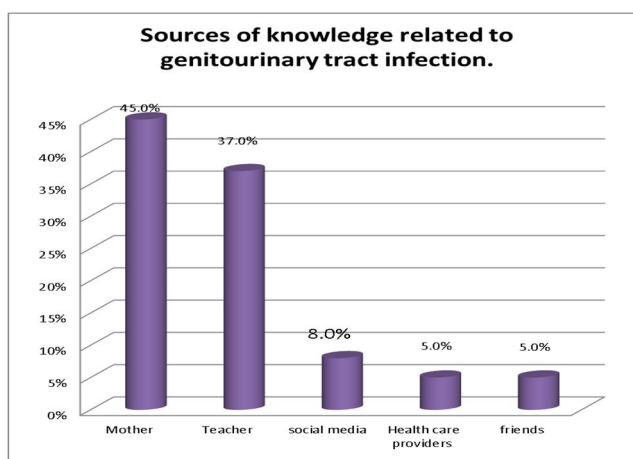


Figure (2): Distribution of the studied sample regarding their sources of knowledge related to genitourinary tract infection and menstrual hygiene (N = 81).

Figure (2): Reveals that, 45.0 % of the studied adolescent nursing girls the main source of knowledge related to genitourinary tract infection was their mothers, followed by 37% was their teacher, and the minority (8%, 5%, and 5%, respectively) were social media , health care providers , and their friends

Part II: Knowledge of the studied sample regarding prevention of Genito-urinary tract infection

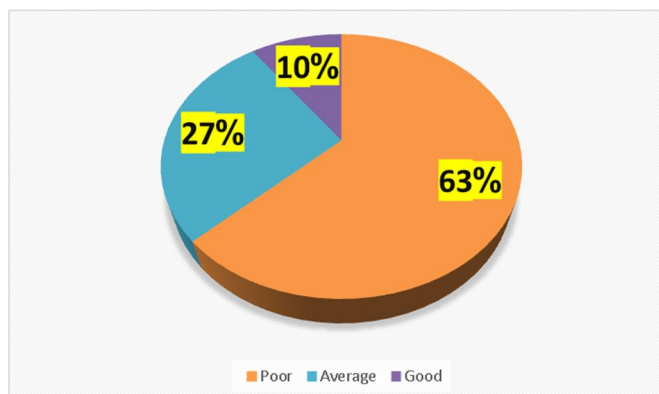


Figure (3): Distribution of the studied sample according to their total level of knowledge score regarding prevention of Genito-urinary tract infection (N = 81).

Figure (3) clarifies that, 63% of the studied sample had poor knowledge regarding prevention of Genito-urinary tract infection

Part III: Habitual practice of the studied sample regarding prevention of Genito-urinary tract infection

Total Habitual Practice Level regarding genito-urinary tract infection

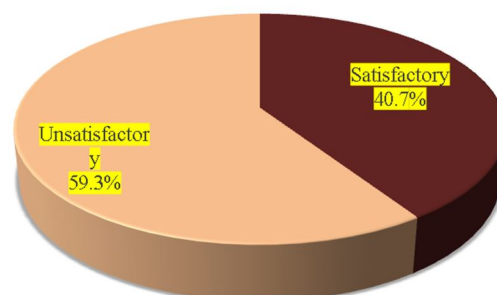


Figure (4): Distribution of the studied sample according to their total level of habitual practice regarding prevention of Genito-urinary tract infection (N = 81).

Figure (4): Reveals that, 59.3% of the studied sample had unsatisfactory habitual practice regarding prevention of Genito-urinary tract infection

Table (2): Relation between socio-demographic characteristics of the studied sample and their knowledge regarding prevention of Genito-urinary tract infection (n= 81).

Demographic data	Total knowledge levels							Test of significance	
	No.	Poor (n= 51)		Average (n= 22)		Good (n= 8)		Fisher	P-Value
		No.	%	No.	%	No.	%		
Age/ years									
15 years	17	13	25.5	3	13.6	1	12.5	3.063	0.0001**
16 years	25	18	35.3	6	27.3	1	12.5		
17 years	31	18	35.3	11	50.0	2	25.0		
18 years or more	8	2	3.9	2	9.1	4	50.0		
Student grade									
First	31	23	45.1	6	27.3	2	25.0	4.408	0.401
Second	26	16	31.4	8	36.4	2	25.0		
Third	24	12	23.5	8	36.4	4	50.0		
Education of the mother.									
Illiterate	19	14	27.5	5	22.7	0	0.0	19.926	0.011*
Read and write	17	12	23.5	5	22.7	0	0.0		
Primary school	4	2	3.9	1	4.5	1	12.5		
Secondary school	36	23	45.1	10	45.6	3	37.5		
University educated	5	0	0.0	1	4.5	4	50.0		
Occupation of mother									
Housewife	68	45	88.2	20	90.9	3	37.5	3.032	0.219
Work	13	6	11.8	2	9.1	5	62.5		
Type of family									
Nuclear family	50	37	72.5	11	50.0	2	25.0	8.556	0.073
Single parent family	10	4	7.9	4	18.2	2	25.0		
Extended family	21	10	19.6	7	31.8	4	50.0		
Residence									
Rural	72	49	96.1	20	90.9	3	37.5	X ² 1.742	0.419
Urban	9	2	3.9	2	9.1	5	62.5		

Table (2): Shows a statistical significant relationship between the total level of knowledge and student age and educational level of mother in which P-value < 0.0001 & 0.011 respectively

Table (3): Relation between socio-demographic characteristics of the studied sample and habitual practice regarding to prevention of Genito-urinary tract infection (n= 81).

Demographic data	Total habitual practice levels					Test of significance	
	No.	Unsatisfactory (n= 48)		Satisfactory (n= 33)		X ²	P Value
		No	%	No.	%		
Age							
15 years	17	11	22.9	6	18.2	0.016	0.013*
16 years	25	18	37.5	7	21.2		
17 years	31	19	39.6	12	36.4		
18 years or more	8	0	0	8	24.2		
student grade							
First	31	24	50.0	7	21.2	0.003	0.002**
Second	26	18	37.5	8	24.2		
Third	24	6	12.5	18	54.6		
Education of the mother.							
Illiterate	19	15	31.3	4	12.1	10.930	0.02*
Read and write	17	13	27.1	4	12.1		
Primary school	4	1	2.1	3	9.1		
Secondary school	36	19	39.5	17	51.5		
University educated	5	0	0	5	15.2		
occupation of mother							
Housewife	68	42	87.5	26	78.8	0.294	0.361
Work	13	6	12.5	7	21.2		
Type of family							
Nuclear family	50	31	64.6	19	57.6	0.416	0.482
Single parent family	10	4	8.3	6	18.2		
Extended family	21	13	27.1	8	24.2		
Residence							
Rural	72	47	97.9	25	75.8	5.753	0.016*
Urban	9	1	2.1	8	24.2		

Table (3): Reveals statistically significant relationship between total practice's mean scores and student age, student grade, educational level of mother and residence at P-Value < 0.013 & 0.002 & 0.02 & 0.016 respectively

Table (4): Correlation matrix between total knowledge level of the studied sample, and total habitual practice regarding prevention of Genito-urinary tract infection (n= 81).

		Total knowledge	Total practice
Total knowledge	R	1	0.407
	P value		0.0001**
Total practice	R	0.407	1
	P value	0.0001**	

Table (4): Reveals that there is high statistically significant strong positive correlation exists between the level of total knowledge and habitual practice at P-value < 0.0001**.

Discussion

Urogenital tract infection is a bacterial infection that affects any part of the genital and urinary tract. occurs when too much bacteria especially those that inhabit the gastrointestinal tract and the skin enter the vagina through the anus and thrive inside the urinary system (kidney ,ureter, bladder and urethras) and consequently reproduce rapidly due to available nutrients. Nursing and non- nursing female students have a high risk of making unhealthy lifestyle choices that could affect their health and wellbeing. (**Abdallah et al,2023**)

Regarding socio-demographic characteristics, the current study revealed that, the mean age of adolescent girls was 16.8± 0.9, more than one third aged 17 years and in first grade ,more than two-fifths of their mothers attained secondary school, more than four-fifths of their mothers were housewives, about two-thirds of the studied sample live in a nuclear family, and the majority of them live in rural areas.

The findings of the current study were in the same line with **Thakur et al., (2022)** who studied "effectiveness of structured teaching program on knowledge regarding UTI among adolescent girls" showed that, about one third were between 16-17 years, the mean age of adolescent girls was 14.68±1.50. The majority near two-thirds belonged to nuclear family, and their residence was in rural areas

From the researcher point of view the majority of mothers were housewives because of attending to secondary school and their residence was rural.

This finding was inconsistent with **Nofal et al, (2020)** who studied" Impact of Educational Program on The Level of Knowledge and Self-Care Behaviors towards Genitourinary Tract Infection among Female Adolescent Students In Zagazig City" indicated that near to two-fifths of studied sample were in the second preparatory grade, more than one-third of their mothers completed high education.

Concerning adolescent nursing girls' previous knowledge about GUTIs, the current study showed that, about two-thirds of them don't have previous knowledge about GUTIs. In the same context, this finding was supported by a study conducted by **Elwakeel, (2022)** who assessed "Effectiveness of an Instructional Module on Vulvitis Prevention among Adolescent Girls" revealed that, the majority of the study group hadn't any previous information about vulvitis and its preventive measures while the minority of them had knowledge. Likewise agree with **Alessa et al., (2019)** who investigated their studies about" awareness of vulvitis and its preventive measures among Saudi Females" in The Kingdom of Saudi Arabia and reported that, the majority didn't had knowledge.

In contrast, these findings were in disagreement with the study done by **Mangai, et al, (2019).** Who studied "Assessment of knowledge and prevention practices of urinary tract infection (UTI) among female students residence in

university of Jos." mentioned that more than four fifths had heard about UTI.

According to the source of knowledge about GUTIs, the current study presented that, more than two-fifths, the main source of knowledge were their mothers, followed by their teachers, and the minority were the social media, health team providers and their friends. These findings were in agreement with **Bhusal, et al, (2020)** who assessed "Level and Associated Factors of Knowledge regarding Menstrual Hygiene among School-Going Adolescent Girls in Dang District, Nepal " who illustrated that, the main source of information were sisters or mothers, followed by friends or relatives.

The result of this study was disagreed with **Semwal &Sharma, (2020)**, who studied "A study to estimate the occurrence, knowledge, practice regarding prevention of urinary tract infection among adolescent girls in selected community areas, Dehradun, Uttarakhand " mentioned that, the majority of girls received information from the teacher then the internet and only10% received information from mothers

From the researcher's point of view, this may be due to the difference of the culture among the studied samples and many young girls identifiedtheir peers as the best source for sharing, and talking about their problems.

Concerning the total knowledge score level about genitourinary tract infection, the present study result illustrated that, around two thirds of the studied sample had poor knowledge regarding prevention of GUTIs, one tenth (10%) had good knowledge and (27%) more than one quarter had average knowledge. The current study result was supported by **Vanmathi, (2020)** who studied "The impact of community health nurse initiated packages on prevention of urinary tract infection among adolescent girls at selected government school, Chennai ". presented that, half of the adolescent girls had inadequate level of knowledge, more than two-fifths of them had a moderate level of knowledge and less than one tenth of them had an adequate level of knowledge regarding general information about UTI.

The current study result was agreed by **Semwal & Sharma, (2020)** who mentioned that, less than one-tenth of them had adequate knowledge. Likewise supported study by **Budhe (2020).** Who studied "Assess the Effectiveness of Structured Teaching Program on Knowledge Regarding Urinary Tract Infection among Adolescent Girls in Junior College, Nagpur". Presented that, in the pretest the minority of the studied sample had good knowledge.

On the other hand this finding was inconsistent with , **Raj et al., (2020)**, who assessed "knowledge and self-reported practices regarding prevention of UTI among adolescents girls" showed that, more than half of the studied sample had good knowledge , less than one third had average knowledge , and one-fifth had poor knowledge levels. Also, the current study finding disagree with the study done by

Alshahrani et al., (2022), demonstrated that, less than two-thirds of the studied female had a good knowledge and more than one-third had poor knowledge regarding UTI.

This dissimilarity may be due to working on a different sample type, a different culture, and educational level that affects knowledge's level of the study sample. The majority of the studied adolescent females had poor knowledge regarding GUTIs, this may be due to majority of them had mothers as a source of knowledge.

Regarding total habitual practice for prevention of Genito-urinary tract infection results showed that, more than half of the studied sample had unsatisfactory habitual practice regarding prevention of Genito-urinary tract infection and two-fifths had satisfactory levels

This result was consistent with **Nofal et al, (2020)** who revealed that, in the pretest, the majority of them had unhealthy hygienic habitual practices regarding perineal hygiene, menstrual hygiene, and care of underwear whereas in the post-test, there was a highly significant improvement in these hygiene habitual practices after the implementation program.

This result was inconsistent with **Raj et al., (2020)**, who reported that more than half of the studied female had favorable practices, about two-fifths of them had neutral practice and no one had unfavorable practice regarding the prevention of UTI.

This may be mainly due to some cultural restrictions preventing the flow of correct and sufficient information given to youngsters. Insufficient knowledge and lack of awareness about hygienic practices that negatively affects their practice.

Concerning the relation between socio-demographic characteristics of the studied sample and their knowledge about prevention of Genito-urinary tract infection, the current study revealed that, statistical significant relationship between the total level of knowledge and student age and educational level of mother in which P value < 0.0001 & 0.011 respectively.

The present study result was agreed with **Mahmoud, et al., (2023)**. Who studied "Self-care practices regarding prevention of urinary tract infection among secondary nursing students" Who mentioned that, there were statistical relationship between students' total levels of knowledge and their socio-demographic characteristics. Also a highly statistically significant relation between nursing student's total level of knowledge with their age and with their mother's education.

The findings of this study was in the same line with **Ibrahim et al , (2022)** who showed that, there were a significant relation between the total knowledge score of the study sample and their age, also there were significant relation between total level of knowledge of them and mother's education. There were no significant relation between total level of knowledge of the study sample and their mother's job.

Also The finding of the study conducted by **Abdelnaem et al, (2019)** who studied "Effect of self-care guidelines on knowledge and quality of life among faculty of nursing students with vaginal infection "reported that, there was a highly statistically significant relation between the student's total score knowledge regarding RTI with their age.

On the contrary the result of the study done by **Elwakeel ,(2022)** who reported that , there were no statistically significant relation between total score of knowledge and attitudes of the study group and their age groups pre intervention. However, there were a highly

statistically significant relation between total score of knowledge and attitudes of the study group and their place of residence pre intervention. Likewise these findings were inconsistent with **Shah et al., (2019)** who studied "Knowledge and practice of genital health and hygiene among adolescent girls of Lalitpur Metropolitan City, Nepal". mentioned that the total mean score of knowledge and total mean score of attitudes had not a significant relation with age.

This may be rendered to maternal education was found to be protective against poor knowledge , Adolescents whose mothers had higher education were less likely to have poor knowledge about GUTIs.

Regarding the relation between socio-demographic characteristics of the studied sample and habitual practice prevention of genito-urinary tract infection Reveals statistically significant relationship between total practice's mean scores and student age, student grade ,educational level of mother and residence at P-Value < 0.013 & 0.002 & 0.02 & 0.016 respectively.

The present study result agree with **Mahmoud, et al ,(2023)** shows that there was highly statistical significant relation between nursing student's total healthy practices and student's residence while there was a statistically significant relation between total practices of studied students with their grade. In the same context, this finding was supported by a study conducted by **Abdelnaem et al, (2019)** who reported that, there was a highly statistically significant relation between the students' total practices score and their age.

These findings were inconsistent with **Shah et al, (2019)**.who reported that the socio-demographic characteristics of respondents with that of practice score were not found to be statistically significant. likewise the findings of this study disagree with **Sonowal et al (2021)**who studied "Socio-demographic factors and their association with menstrual hygiene practices among adolescent girls in urban slums of Dibrugarh town, Assam " revealed that, type of family, education of mother, and socioeconomic status have no significant association with knowledge regarding menstrual hygiene practice.

From the researcher's point of view this might be due to increasing students' age may lead to increase awareness about proper hygienic practices. Also, mothers who had high educational level could educate their girls about healthy practices also increasing the awareness in the urban areas than in rural areas.

According to the correlation between total knowledge and habitual practice the current study presented that, there was a high statistically significant strong positive correlation exists between students level of knowledge and habitual practice in which P-value 0.0001**. The current study was supported by **Abdelnaem et al, (2019)** revealed that, there was a highly statistically significant relation between total knowledge of the students with their practices.

The findings of the current study disagree with **Abdallah et al., (2023)**. showed that, there was a statistically non-significant correlation between total practices and total knowledge of the studied students (nursing and non- nursing). This may be due to the fact that when knowledge improves practice tends to be healthier. Adequate knowledge regarding prevention of urogenital tract infection can maximize effective prevention. Female students can share learning to their friends, families, and communities so that it is essential to meet the educational need to optimize the quality of life.

Conclusion

This study revealed that, around two thirds (63%) of the studied sample had poor knowledge regarding prevention of Genito-urinary tract infection, likewise more than half (59.3%) of the studied sample had unsatisfactory habitual practice regarding prevention of Genito-urinary tract infection.

From this study the following recommendations can be suggested:

- 1- Designing and application of educational program to increase awareness of female adolescent regarding prevention of GUTI.
- 2- Conducting further researches to cover other schools, areas and as well from different geographical areas in Egypt to assess the knowledge and increase awareness about risks factors, prevention and screening for early detection of GUTI and the adequate intervention.

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