Knowledge and Practice of Women with Lower Genital Tract Infections

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Abstract

Background: Reproductive tract infections (RTIs) are recognized as a major public health problem and rank second - after maternal morbidity and mortality - as the cause of healthy life loss among sexually- active women of reproductive age in developing countries. **The aim: the study***:* The study aimed to assess to assess knowledge &practice of women regarding lower of reproductive tract infection**. Setting***:* The study was conducted at the patient gynecological clinic at Benha University Hospital. **Design***:* Descriptive study design. **Sampling***:* A purposive sample included300 women were recruited in the current study. **Tools:** Three tools were used to collect data, Tool 1-Interviewing questionnaire to collect data include Part 1:-sociodemographic characteristics data, Part 2:- Reproductive history Part 3:- Related to characteristics of vaginal discharge Part 4:- Related to personal hygiene habits Tool II: - women's knowledge and Tool III- An observation check list: used to assess practice of studied sample of reproductive tract infections. **Results***:* The present study revealed that most common of the studied group are mean age 25.67 ± 2.09 married, house wife, and are living in urban area. There is highly statistically significant differences women's total knowledge score and their marital status, age at marriage, and years of marriage. The total practice score in relation to their personnel characteristics, it reveals that there was a statistical significant difference between women total practice score and their residence, age at marriage, and years of marriage**. Conclusion***:* There is highly statistically significant differences women's total knowledge score. And the total practice score in relation to their personnel characteristics, it reveals that there was a statistical significant difference between women total practice score and their residence, age at marriage, and years of marriage in addition to highly positive significant correlation that clarifies that increase knowledge will subsequently increase practice of women regarding lower reproductive tract infection. **Recommendations:** Periodic educational program for women to increase their knowledge and to improve their practice. Counseling women about the importance of periodic follow up.

Key words: Lower reproductive tract infection, knowledge, practice **.**

Introduction

Infections of the lower reproductive tract are common quite simply due to the nature of the female reproductive anatomy. The vagina naturally has a variety of bacteria and yeast that can be disrupted and displaced due to various factors including antibiotic use, pregnancy, and sexual intercourse and decreased immune response (**Nugent et al., 2012).**

There are three types of RTIs. These are endogenous infections, iatrogenic infections and sexually transmitted infections (STIs). Each type of infection has its own specific causes and symptoms. The symptoms can range from itching, burning and pain to abnormal discharge and odor (**Sihavong et al., 2011).**

Reproductive tract infections (RTIs) refer to three different types of infection which affect the reproductive tract: Endogenous infections are probably the most common RTIs worldwide. They result from an overgrowth of organisms normally present in the vagina. Endogenous infections include bacterial vaginosis and candidiasis. These infections can be easily treated and cured. Iatrogenic infections occur when the cause of infection (a bacterium or other micro-organism) is introduced into the reproductive tract through a medical procedure such as menstrual regulation, induced abortion, and the insertion of an IUD or during childbirth. This can happen if surgical instruments used during the procedure have not been properly sterilized, or if an infection that was already present in the lower reproductive tract is pushed through the cervix into the upper reproductive tract (**Gulati et al., 2009).**

RTIs are caused by a bacterium, virus, fungus or other organism. Some are easily treatable with antibiotics and curable. Some are more difficult to treat and others, such as AIDS and herpes, are non-curable. (**Sihavong et al., 2011).**

The nurse's role is important for prevention, and education to limit recurrences of these infections and prevention of subsequent complications. The nurse should perform careful assessment of women for common signs, symptoms, and presence of risk factors such as improper use of douches, antibiotics, multiple sexual partners, immunosuppressive condition, appearance and color of vaginal discharge (**Rabiu et al., 2010).** Also education is another important role; the nurse has to deliver important health educational topics to the patients as diet, personal hygiene, increasing immunity, and administration of way of medication **(Rahman et al., 2013).**

Natural Barriers against genital infections:

Aziz and Hussein (2010) reported that natural barriers against genital infections include the following:

1) The vaginal acidity: In the childbearing period estrogen helps glycogen deposition in the vaginal cells. Doderlien`s bacilli "lactobacilli" split the glycogen into lactic acid and the pH of the vagina is 4.5.
2) The stratified squamous epithelium of the vagina: Stratification of the vaginal epithelium is stimulated by estrogen.
3) The cervical mucus: It closes the cervical canal, preventing ascent of micro-organisms.

Monthly shedding of the superficial layer of the endometrium: Shedding prevents persistence of infection.

It is important for the nurse to be aware that reproduce tract infection is the most common complaint during child bearing period, affecting millions of women worldwide, so it is important of improve the quality of care and health education given to those women. The nurse can play a crucial role in primary prevention and education to control the predisposing factors, limit recurrences of these infections and prevent complications by teaching them to take the precautions high lighted **(Ricci & Kyle, 2009**).

According to the estimates of the **(WHO),** reproductive health problems accounted for 18 percent of the total global burden of diseases in 2001. Representing 32 percent of the health burden among women in the childbearing age group worldwide **(IDSK, 2011**). In developing countries incidence and prevalence of RTIs are very high, they rank second as the cause of morbidities among women of reproductive age, next to maternal morbidity and mortality **(Rabiu et al., 2010).**

subjects and methods

Research Design:

A descriptive research design was utilized in the present study.

Setting:

This study was applied at the patient gynecological clinic at Benha University Hospital

I- Subjects:

Sampling:300 women who were attended patient gynecological clinic at Benha University Hospital. This sample size was calculated based on the flow rate of women at studied setting for a year (2012-2013), the flow rate was 3000 client. The sample size was 10% from the total women attended to previous mentioned setting. **Certain criteria**: A convenience sample of married women will be recruited for the study according to the following criteria:

Having abnormal vaginal discharge, Recruited during the childbearing period. And agree to engage in the study.

Tools of data collection:

It consists of three tools:

Tool1: Interviewing questionnaire:The sheet was Arabic language and consisted four parts:-

- **Part 1:** Sociodemographic characteristics data as, age, educational level, occupation, and as well as husband's biographic data include 2 items, (educational level, occupation)

- **Part 2:** Reproductive history includes 9 items (age of menarche, regularity and duration of menstruation…….etc). and reproductive history includes 9 items (age of menarche, regularity and duration of menstruation…….etc). And medical history include 2 items (medical and type of disorders)

- **Part 3:** Related to characteristics of vaginal discharge. Include8items (discharge, odor, color, and frequency…….etc).

- **Part 4:** Related to personal hygiene habits include 6 items (Type of toilet, Shower in weeks, Type of material used to rinse vaginal….etc).

Tool II: women's knowledge included 12 items:

Meaning of l ower reproductive tract infection, Signs and symptoms, Causes, Types….etc.

❖ **scoring system**

All knowledge variables were weighted according to the items included in the answer of each question. The data collected from the knowledge test was computed and the test received a grade out of 12 questions, the scores were allocated as follows: complete (2), incomplete (1), wrong (0).

Tool III-An observation check list: Used to assess practice of studied sample of reproductive tract infections through routine hand washing, perinatal care.

II- Methods

Operation of the study:

The study was executed according to the following steps:-

1- **Approval**

An official letter from the faulty of nursing, Benha University was directed to the responsible authorities to obtain their permission conducted .the study after explaining it purpose written approvals were obtained from the director of Benha university hospital.

2- Tools for data collection:-

The tools for data collection were developed after reviewing of related literature and were for content validity and reliability.

3-Validity and Reliability:

Content validity was tested by three experts in nursing field. The questionnaire was modified according to the expertise comments and recommendations.

4-Pilot study

It was carried out on 30 women (10% of total sample) to evaluate reliability of study sample and clarity of the study tool. To modification was done according to Pilot study. Pilot study participants were excluded from the study sample size.

5-The purpose of pilot study were to:

- Test the feasibility of the study and the appliliability of the tool.
- Find out the possible obstacles and problems that might face the researcher and interfere with data collection.
- Detect any problems peculiar to the statements as sequence of questions a clarity.
- Estimate the time needed for data collection

6-pilot study

After conducting the pilot study it was found that the sentences of the tools were clear and relevant but few words have been modified according to pilot study results, simple modifications were done rephrasing question or revoke some questions.

7-Ethical consideration

- The aim of the study was explained to each woman before applying the tools to gain woman's confidence and trust.
- An oral consent was obtained from each woman to participate in the study and she can freely withdraw at any time.
- The data was collected and treated confidentially.
- Each woman was informed about time throughout the study.

8-Field work

- Data were collected from the beginning of October, 2014 till the end of March, 2015 covering six months.
- -The study was carried out for 3days weekly from 9 am to 12 pm in the outpatient gynecological clinic at Benha University Hospital.
- The researcher was greeted the client warmly.
- The researcher was utilized suitable method of communication and she was explained the aim of the study and the questionnaire to each woman individually The sheet was

filled by the researcher through an interview ranged from15 to 20 minutes with each woman, which 5-6 sheets were filled each day until the predetermined number was obtained.

- As regarding interviewing questionnaire for women's general characteristics; the questionnaire was administrated by the researcher to assess the general characteristics of women. Knowledge of the studied women regarding reproductive tract infection was evaluated by using interviewing questionnaire.
- In relation to women's practice, it was reported by women regarding practice of studied sample of reproductive tract infections through routine hand washing, and prenatal care.

9-Statistical design

After data collection, each sheet was scored, and data were organized, categorized, results were presented in tables and were analyzed by using the statistical package for social sciences (SPSS) program, version (14). Numerical qualitative data were expressed as frequencies and percentages. As well, means, standard deviation (SD), and probability of errors (p-value) test were used to examine the relation between qualitative variables.

Results

Part I Table (1): Socidemographic characteristics of the studied women (n =300)

Demographic characteristics	No.	%
Age in years		
20-	131	43.7
25-	101	33.7
30-	68	22.7
Mean ±SD	**25.67±2.09**	
Educational qualification		
Illiterate	59	19.7
Read and write	81	27.0
Secondary	118	39.3
University education	42	14.0
Marital Status		
Married	219	73.0
Widow	36	12.0
Divorced	45	15.0
Residence		
Urban	169	56.3
Rural	131	43.7
Occupation		
Working	106	35.3
House wife	194	64.7
Age at marriage		
18-25	168	56.0
26-30	132	44.0
Mean ±SD	**27.58±3.37**	
Years of marriage		
1-5	151	50.3
6-10	74	24.7
11-15	75	25.0
Mean ±SD	**8.89±3.75**	

Table (1): shows the socio-demographic data of the studied women, the mean age was 25.67±2.09 years, 39.3% of women had secondary level of education and 64.7% of them were housewives. In addition 56.3% live in urban areas, 73.0 of them are married, 56.0% married at 18 to 25 years old, and 50.3% of have from one to five years duration of marriage.

Table (2):Reproductive history of study cases (n = 300).

Reproductive history	No.	%
Age of menarche(years)		
10-13	161	53.7
14-16	139	46.3
Mean ±SD	**14.03±2.09**	
Regularity of menstruation		
Irregular	171	57.0
Regular	129	43.0
Duration of menstruation		
3-6	81	27.0
7-10	219	73.0
Gravidity		
1-	105	35.0
3-	129	43.0
5-	66	22.0
Parity		
1-	105	35.0
3-	129	43.0
5-	66	22.0
Complications in previous pregnancy		
No	204	68.0
Yes	96	32.0
Contraceptive use		
No	69	23.0
Yes	231	77.0
Type of contraceptive method (n=231).		
COCP	108	36.0
IUD	93	31.0
Injectable	99	33.0
Duration of contraceptive use		
1-	189	63.0
5-	75	25.0
10-	36	12.0

Table (2): show that 53.7% of studied had menarche at 10-14 years, 57.0% of them had irregular menstruation and 77.0% of them use contraception.

Table (3): Distribution of Studied Women regarding characteristics of vaginal discharge(No 300).

Vaginal discharge	No.	%
Vaginal discharge		
Yes	209	69.7
No	91	30.3
Odor of Vaginal discharge (n=209).		
Bad odor	131	62.7
No odor	78	37.3
Color of Vaginal discharge (n=209).		
White	117	56.0
Yellow	92	44.0
Frequency of Vaginal discharge (n=209).		
Continuous	58	27.8
Intermittent	151	72.2
Viscosity of Vaginal discharge (n=209).		
Liquid	117	56.0
Viscous	92	44.0
Signs associated with discharge (n=209).		
Purities	113	54.0
Abdominal pain	66	31.6
Redness	30	14.4
Onset of Vaginal discharge (n=209).		
less 1month	87	41.6
More 1month	122	58.4
taking treatment after medical consultation		
Yes	130	62.2
No	79	37.8

Table (3): Shows that 69.7% of women had vaginal discharge, 62.7% of them had bad odor, vaginal discharge, and 72.2% had intermittent vaginal discharge. Moreover58.4% of women had vaginal discharge for more than one month.

Table (4): Distribution of Studied Women regarding personal hygiene habits(N. 300)

Personal hygiene habits.	No.	%
Type of toilet		
Balady	105	35.0
Afrangy	195	65.0
Shower week		
1-<3	215	71.7
3-<5	44	14.7
5-<8	41	13.6
Type of material used to rinse vaginal		
Water	137	45.7
water soap	101	33.7
wash by doctor	62	20.7
The position during vaginal rinsing		
Stopping	45	15.0
sitting in toilet	104	34.7
sit in dish with water	151	50.3
The direction of vaginal rinse		
forward to back ward	55	18.3
backward to forward	90	30.0
no order	155	51.7
Removing pubic hair and perineum area		
Sweet	176	58.7
Shaving	92	30.7
special machine	32	10.7

Table (4): Illustrates that 71.7% of women had a shower less than three times per week, 45.7% of them apply perianal care only with water, and 50.3% sit in during bath in water. Finally 58.7% of them use sweet for removing pubic hair.

Part II Table (5): Distribution of Studied Women is knowledge about lower reproductive tract infection (N.300).

Items	Don't know		Incomplete		Complete		X^2	P value
	No	%	No	%	No	%		
Meaning of lower genital tract infection	219	73.0	58	19.3	23	7.7	215.54	0.000**
Signs and symptomsinfection	219	73.0	58	19.3	23	7.7	94.22	0.000**
Causes of infection	179	59.7	66	22.0	55	18.3	80.34	0.000**
Types infection	173	57.7	68	22.7	59	19.7	99.06	0.000**
Preventive of infection	185	61.7	74	24.7	41	13.7	218.54	0.000**
Complication of infection	177	59.0	84	28.0	39	13.0	94.22	0.000**
Risk factor of infection	179	59.7	66	22.0	55	18.3	80.34	0.000**
Treatment of infection	178	59.3	57	19.0	65	21.7	99.06	0.000**
Causative agents of infection	174	58.0	61	20.3	65	21.7	96182	0.000**
Effect infection on reproductive health	208	69.3	66	22.0	26	8.7	82.22	0.000**
Effect of infection on sexual relation	173	57.7	68	22.7	59	19.7	91.58	0.000**
Effect of infection on pregnancy	177	59.0	84	28.0	39	13.0	113.82	0.000**

Table (5): Illustrates that 73.0% of women don't know the meaning and signs of lower genital tract infection. 28.0% had incomplete knowledge regarding both complications and effect of lower genital infection on pregnancy. On the other hand 21.7% of them had a complete knowledge regarding treatment and causative agents of lower genital tract infection.

Part III Table (6): Distribution of Studied Women regarding their practices towards care of lower genital tract infection**.** (N.300)**.**

Item	Done		Not done		X^2	P value
	No	%	No	%		
Wearing cotton clothes	222	74.0	78	26.0	69.12	0.000**
Boiling underwear clothes	222	74.0	78	26.0	69.12	0.000**
Avoid wearing under wear of others	257	85.7	43	14.3	152.65	0.000**
Using vaginal odor relieve subjects	151	50.3	149	49.7	.013	
Applying pad for discharge	245	81.7	55	18.3	120.33	0.000**
Hand washing before toilet	153	51.0	147	49.0	0.120	
Hand washing after toilet	231	77.0	69	23.0	87.48	0.000**
Use vagina douche	272	90.7	28	9.3	198.45	0.000**
Perineal care during toilet	262	87.3	38	12.7	167.25	0.000**
Continuous Change to underwear to not be media for infection	188	62.7	112	37.3	0.33	
Use disinfectant solution for washing underwear	268	89.3	32	10.7	185.65	0.000**

Table (6): shows that 90.7% of women use vaginal douches, 89.3% add disinfectant solution at washing underwear, and 85.7% avoid wearing others under wear of. While 49.7% of them don't use odors to relieve odour, and 49.0% of them don't wash their hands before toilet.

Table (7): Distribution of Studied women regarding their practice during menstruation to avoid lower reproductive tract infection (N. 300)**.**

Item	Done		Not done		X^2	P value
	No	%	No	%		
Take bath during menstruation	155	51.7	145	48.3	1.33	>0.05
Bathing in standing position.	240	80.0	60	20.0	108.00	0.000**
Perineal care with antiseptic solution	236	78.7	64	21.3	98.61	0.000**
Disinfect or clean toilet before and after use	160	53.3	140	46.7	1.33	>0.05
Use sanitary pads	224	74.7	76	25.3	73.01	0.000**
Sanitary pad is made from cotton	263	87.7	37	12.3	170.25	0.000**
Change pad every each bath	180	60.0	120	40.0	12.00	<0.05*
Change pad every 4hours especially in 1st day then every 8 hours	252	84.0	48	16.0	128.72	0.000**
Don't reuse the pad	260	86.7	40	13.3	161.33	0.000**

Table (7): Reveals that 87.7% of women used cotton sanitary pads, 86.7% of them don't reuse the pad. On the other hand 48.3% of women don't take bath during menstruation, moreover 46.7% of them don't disinfect or clean toilet before or after us.

PART IV **Table (8):** Distribution of women total knowledge score in relation to personal characteristics(N.300**).**

Items	Inadequate N=247		Adequate N=53		X^2	P value
	N0	%	N0	%		
Age(years)					642	>0.05
20-	110	44.5	21	39.6		
25-	83	33.6	18	34.0		
30-	54	21.9	14	26.4		
Educational qualification					8.51	<0.05*
Illiterate	97	39.3	21	39.6		
Read and write	73	29.6	8	15.1		
Secondary	48	19.4	11	20.8		
University education	29	11.7	13	24.5		
Marital Status					12.34	<0.001**
Married	189	76.5	30	56.6		
Widowed	29	11.7	7	13.2		
Divorced	29	11.7	16	30.2		
Residence					. 428	>0.05
Urban	110	44.5	21	39.6		
Rural	137	55.5	32	60.4		
Occupation					.299	>0.05
Working	89	36.0	17	32.1		
House wife	158	64.0	36	67.9		
Age at marriage					22.86	<0.001**
18-<25	154	62.3	14	26.4		
25-<30	93	37.7	39	73.6		
Years of marriage					12.78	<0.001**
1-<5	119	48.2	32	60.4		
5-<10	71	28.7	3	5.6		
10-<15	57	23.1	18	34.0		

(*) statistical significant difference at level (<0.05).
(**) highly statistical significant difference at level (<0.001).

Table (8): shows studied women total knowledge score in relation to their personnel characteristics, it reveals that there was a highly statistical significant difference between women total knowledge score and their marital status, age at marriage, and years of marriage (p<0.001).

In addition there was a significant relation between knowledge and educational level. While there was no statistical significant difference between total knowledge and their age, residence, and occupation (p>0.05).

Table (9): Distribution of women total practice score in relation to personal characteristics.(N.300).

Items	Unsatisfactory N= 72		Satisfactory N=228		X^2	P value
	N0	%	N0	%		
Age(years)					3.36	>0.05
20-	28	38.9	103	45.2		
25-	22	30.6	79	34.6		
30-	22	30.6	46	20.2		
Educational qualification					3.13	>0.05
Illiterate	33	45.8	85	37.3		
Read and write	14	19.4	67	29.4		
Secondary	14	19.4	45	19.7		
University education	11	15.3	31	13.6		
Marital Status					2.31	>0.05
Married	56	77.8	163	71.5		
Widowed	5	6.9	31	13.6		
Divorced	11	15.3	34	14.9		
Residence					3.08	<0.05*
Urban	47	65.3	122	53.5		
Rural	25	34.7	106	46.5		
Occupation					.015	>0.05
Working	25	34.7	81	35.5		
House wife	47	65.3	147	64.5		
Age at marriage					3.97	<0.05*
18-<25	33	45.8	135	59.2		
25-<30	39	54.2	93	40.8		
Years of marriage					7.27	<0.05*
1-<5	27	37.5	124	54.4		
5-<10	25	34.7	49	21.5		
10-<15	20	27.8	55	24.1		

(*) statistical significant difference at level (<0.05)
(**) highly statistical significant difference at level (<0.001)

Table (9): Shows studied women total practice score in relation to their personnel characteristics, it reveals that there was a statistical significant difference between women total practice score and their residence, age at marriage, and years of marriage ($p<0.05$). While there was no significant relation between total practice and their age, educational level, and occupation

PART V Table (10): Correlation between women total knowledge score and practice score.**(N.300)**

Variables	Total practice score	
	R	P value
Total knowledge score	.240	<.0001**

** Correlation is significant at the 0.01 level (2-tailed).

Table (10): reveals a highly positive significant correlation meaning that increased knowledge will subsequently increase practice score of women regarding lower reproductive tract infection

Discussion

Infections of the lower reproductive tract are common quite simply due to the nature of the female genital tract anatomy. The vagina naturally has a variety of bacteria and yeast that can lead female reproductive to be disrupted due to various factors including antibiotic use, pregnancy, sexual intercourse and decreased immune response (**Blacksberg, 2014).**

Regarding the socio-demographic characteristic of studied women, the results of the current study revealed that the mean age of women was 25.67±2.09 years, nearly half of them were between 20-25 years. The majority of them were married, more than one half were living in urbanareas, and one third had secondary level of education. These results are nearly similar to those reported by **Bohara et al. (2012)** study who showered that mean age of studied sample was 32.10 ± 8.81 years. The majority of them were married and approximately half of them had middle education. The a showed that low socio demographic factors negatively predispose to genital tract infection. The results of current study agree with **Ahmed et al. (2000), Paulo et al. (2007), Okunlola et al. (2009), and Kamel (2011)** who reported a statistically significant relation between lower educational level and incidence of genital tract infection.

In addition more than half of cases were married at the age of 18 to 25 years and duration of marriage ranged from one to five years. Also two third of women were house wife. Regarding personal characteristics of male, pertness the results showed that one third of them were illiterate and vocational occupation. This result may be explained by the fact that women during childbearing period are most commonly exposed to lower reproductive tract infection due to poor personal hygienic practices, which lead to high prevalence of infection

The results of current study showed that more than half of studied women had menarche at 10-13 years age, It was noticed that two-thirds of them had irregular period cycle duration was days and 8-10 .This finding is in line with **Yassin (2012**) who revealed a high prevalence of menstrual disorders, almost all of the study subjects suffered from one or more of menstrual disorders.

Regarding gravidity and parity, this study revealed that more than one third of studied women were pare 3. In the same line **Abd El-Aliem, (2015**) showed that the majority of women had 1-3 pregnancies this result was in accordance with **Bahram et al. (2009)** who found insignificant correlation between vaginal infection and number of pregnancies .which increase the risk to infection. This may be related to increase vaginal secretions and lowered immunity defense of the pregnant women causing vaginal infection particularly Candida infectionOn the

other hand, revealed that, slightly more than one third of the women were using the IUD, for one year and that IUD is not a predictor which might contribute to the incidence of genital tract infection. **Al Quaiz (2000); Omar (2001) and Kurewa et al. (2010),** reported no statistically significant relation between IUD and the incidence of genital tract infection. On the contrary, **Saullam et al. (2008) and Okunlola et al. (2009),** reported a statistically significant relation between using IUD and the incidence of genital tract infection.

The present study showed that, two thirds of women complained from abnormal vaginal discharge with bad odor, white, intermittent, viscous and vaginal itching since more than one month. **Kamel (2011),** indicated, subside era of abnormal vaginal discharge, change in color of discharge, bad odor, vaginal itching, dysuria, dyspareunia, and lower abdominal pain with a highly statistically significant difference ($p = 0.000$). Moreover, findings of this study indicated that redness and swelling of genitalia were decreased with highly statistically significant differences ($p= 0.001$ & $p = 0.032$ respectively). In addition, findings of the current study indicated normal vaginal swabs among 65% of the sample after health education and follow-up course of treatment.

Concerning the reason of using vaginal douche, the current study stated that two third of the studied women used vaginal douche by water every shower 1-3 weeks, sit in dish with water, personal hygiene ,and used afrangy toilet

The results of the present study revealed deficient knowledge among studied women regarding meaning of lower reproductive tract infection, signs& symptoms and effect of infection on reproductive health. In the same line ***Mohamed, (2015)*** regarding students' knowledge about RTIs, it was evident that the majority of the studied sample had unsatisfactory knowledge score level about RTIs. This may be attributed to insufficient basic information about this topic. Lack of knowledge might be due to the fact that mothers themselves suffer from lack of information about reproductive problems and may not feel comfortable in discussing such issues as reported by various studies

The current study revealed that the majority of women, who use vaginal douches, add disinfectant solution for washing underwear and wear cotton under clothes. These findings disagree with ***Dimetry et al. (2007) and Hacıalioglu et al. (2009)*** who reported significant associations between infection and unsatisfactory personal hygiene e.g. those who wear clothes other than cotton.

The current study revealed that the majority of studied women had healthy perineal hygiene practice**,** healthy practices during menstruation with the use of cotton sanitary pads cotton, don't reuse the pad and change pad every 4hours. These results agree with ***Zoetermeer (2007)*** who stated that learning about menstrual hygiene is a vital part of education of females to continue work and maintain hygienic habits throughout their life. The ideal menstrual health education curriculum encourages females to think about the relationships between knowledge, choice, behavior's and enhanced human health. ***Mudey et al. (2010)*** proved that vaginal infections due to lack of hygiene during menstruation reported in many studies are mainly related to appropriate information about menstrual hygiene. Also ***Lawan et al. (2010)*** proved that poor menstrual hygiene and inadequate self-care are major determinants of morbidity and other complications among the reproductive age ***group.*** This result disagrees with ***Ahmed (2009)*** who mentioned that the majority of the women had improper perineal hygiene practice.

As regards the current study disagree with ***Abd El-Aliem (2015)*** who showed that minority of women take shower during menstruation involving genital area cleanliness, bathing in standing position, disinfection or cleaning toilet before and after use, use of sanitary perineal pad and that sanitary pads were made of cotton, changed pad every bath and every 4hours especially in the 1st days of cycle then every 8 hours till end of the menstrual period. About one half of studied women reported reuse of the perineal pad which is an unhygienic practice.Additionally ***Bhudhagaonkar & Shinde (2014)*** found that the majority of study sample use the homemade sanitary cotton clothes with a vast unmet need to teach them menstruation practices to prevent health complications due to unhygienic practices. They found that only 17% of sample change their pads 6 hourly whereas 28 % of samples change their pads when needed.

The current study revealed that the majority of women do perineal care with antiseptic solution after sexual relation and sit in warm water after sexual relation. These finding disagree with ***Mohamed et al. (2015)*** who showed that all women had unhealthy vaginal hygienic practices regarding sexual relation, This is explained by , the fact that the majority of them were newly married and hadn't enough and correct knowledge about hygienic practices after sexual relations. This finding is in the same line with ***Hull et al. (2010)***, who reported that intravaginal cleaning was the most prevalent practice among the majority of the studied women.

As regards the correlation between women's total knowledge score level and their socio-demographic characteristics, the results of current study revealed a highly statistical significant relation between women total knowledge score level with their years of marriage, age of marriage, and marital status. This may be due to lack of awareness about reproductive tract infection at secondary school education in rural area compared to urban areas. It may also be attributed being newly married and deficient and correct knowledge about reproductive tract infection.

This finding agree with ***Mohamed et al. (2015)***, who showed a highly statistically significant relation between women's total knowledge score level and their residence, and marital status. This finding disagree with ***Salve et al. (2012)***, who showed poor knowledge about female reproductive system among rural women. This finding agrees with ***(Lan et al., 2009),*** who reported that overall RTI/STI knowledge was higher among married women. This could be attributed to the sensitive nature of the issue and feelings of shame among women, especially unmarried, when talking and asking questions about reproductive matters.

As regards the relationship between women's total practice score level and socio-demographic characteristics, the current also finding showed a statistical significant relation between women's total practice score level and their residence, and their age at marriage and years of marriage. This finding agrees with **Mohamed et al. (2015) & Slave et al. (2012),** who found statistical significant relation between hygienic practices among adolescent girls and their residence. This might be explained that, married women may have higher level of awareness about proper hygienic practices in order to maintain a healthy reproductive tract that is needed in the childbearing period.

Concerning statistical correlation between women's total knowledge score level and their total practice score level, the present work findings showed a positive correlation between

adequate/inadequate knowledge and satisfactory / unsatisfactory practices. Thus when knowledge improves, practice tends to be more healthy (hygienic). This result is in agreement with **Bobhate & Shrivastava (2011),** who mentioned that significant association was observed between having good/fair knowledge and good practice regarding menstrual health.

Conclusion

Based on results of the present study, the following can be concluded:

Most common of the studied group are mean age 25.67±2.09 married, house wife, and are living in urban area. There is highly statistically significant differences women's total knowledge score and their marital status, age at marriage, and years of marriage. The total practice score in relation to their personnel characteristics, it reveals that there was a statistical significant difference between women total practice score and their residence, age at marriage, and years of marriage in addition to highly positive significant correlation that clarifies that increase knowledge will subsequently increase practice of women regarding lower reproductive tract infection.

Recommendations

In the light of the result of the present study, the following recommendations are suggested:

- Based on identified needs, designing and implementing relevant educational classes/programs for women having reproductive tract infection Use of appropriate educational strategies to increase women health awareness and significance of adopting healthful life style, nutrition & hygiene,.

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